NEW MEXICO HIGHER EDUCATION DEPARTMENT

Fostering Student Success from Cradle to Career

Michelle Lujan Grisham, *Governor*
Stephanie M. Rodriguez, *Cabinet Secretary*
Patricia Trujillo, *Deputy Secretary*

New Mexico General Education Curriculum Course Certification Form

Application Number | 2749 |

Institution and Course Information

Name of Institution	WNMU
Chief Academic Officer Name	William Crocker
Chief Academic Officer Email	William.Crocker@wnmu.edu
Registrar Name	Susan Russell
Registrar Email	Susan.Russell@wnmu.edu
Department	Academic Affairs
Prefix	MATH
Number	1150
Suffix	
Title	Business Mathematics
Number of Credits	3

Was this course previously part of the general education curriculum?

☐ Yes ☒ No

Is this application for your system (ENMU, NMSU, & UNM)?

☐ Yes ☒ No

Co-Requisite Course Information

Prefix	n/a
Number	n/a
Suffix	n/a
Title	n/a

New Mexico Common Course information

Prefix	MATH
Number	1150
Suffix	
Title	Business Mathematics

A. Content Area and Essential Skills

To which content area should this course be added? *Indicate "Other" if the course is not associated with one of the six NM General Education content areas.*

☐ Communications ☒ Mathematics ☐ Science ☐ Social & Behavioral Sciences
☐ Humanities ☐ Creative & Fine Arts ☐ Flex

Which essential skills will be addressed?

         ☒ Communication   ☒ Critical Thinking   ☐ Information & Digital Literacy

         ☒ Quantitative Reasoning   ☐ Personal & Social Responsibility

B. Learning Outcomes

List all common course student learning outcomes for the course.

Studies finite math topics used in business, biology, and social science including systems of linear equations, matrices, linear programming, counting techniques, probability, and math of finance.

Student Learning Outcomes

Students will:

- Display, analyze, and interpret data.
- Demonstrate knowledge of problem-solving strategies.
- Construct valid mathematical explanations.
- Display an understanding of the development of mathematics.
- Demonstrate an appreciation for the extent, application, and beauty of mathematics.

List all institution-specific Student Learning Outcomes that are common to all course sections offered at the institutions regardless of instructor.

n/a

C. Narrative

In the boxes provided, write a short (~300 words) narrative explaining how the course weaves the essential skills associated with the content area throughout the course. Explain what students are going to do to develop the essential skills and how you will assess their learning. The narrative should be written with a general audience in mind and avoid discipline specific jargon as much as possible.

Be sure to address the component skills listed next to each essential skill. The number of component skills that must be addressed by your narrative is listed.

Communication. *Genre and Medium Awareness, Application and Versatility; Strategies for Understanding and Evaluating Messages; and Evaluation and Production of Arguments.*

In Business Math, students must use communication to effectively utilize mathematical analysis of business-related quantitative data and convey financial information in a clear, persuasive manner. Genre awareness is critical in understanding the different types of math-related business documents, such as financial statements, forecasts and budget proposals; and, in determining the specific type of mathematical equation or model commonly used in a particular business setting because each has its own distinct set of formulas and application methods. Students must effectively classify different problems based on their purpose and the business function they address and use mathematical symbols to express the genre-specific equations and calculations involved in them. Medium awareness is needed in reading charts, graphs, and statistical reports and in utilizing the most effective communication medium based on the context and the audience. Solid knowledge of business-related metrics like profit, revenue, cost, break-even point and types of interest is crucial for explaining purpose and context of messages. Message evaluation is used in analyzing financial data presented in various formats, identifying key trends, and accurately interpreting the information for the purpose of making informed decisions. Students must use argument evaluation to assess the

validity of claims made in financial analysis, consider supporting evidence and identify potential biases or limitations in data collection and interpretation. Students use argument construction when presenting financial information and recommendations with clear and logical reasoning, explaining calculations and their financial implications, selecting appropriate supporting data and anticipating counterarguments. Students must translate descriptive problems into mathematical formulas and clearly articulate the steps taken to solve the problem for the purpose of making informed decisions based on the mathematical analysis.

The genre in the assessment provided is linear programming, in which students must recognize the setting of linear optimization subject to constraints given in the investment portfolio problem described and then take steps to solve the problem using a maximum linear programming strategy developed with the Fundamental Theorem of Linear Programming. Students must translate the descriptive problem into a maximization linear program and use the medium of graphing to determine the feasible region on which the objective function can be maximized. Finally, students must produce an argument using the Fundamental Theorem of Linear Programming to determine optimal solutions for maximization of the linear programming problem and interpret those values in the investment portfolio context.

Critical Thinking. *Problem Setting; Evidence Acquisition; Evidence Evaluation; and Reasoning/Conclusion*

In Business Math, students must use critical thinking to analyze data, assess the validity and reliability of data sources and calculations, interpret financial information, evaluate different financial scenarios and make informed decisions based on quantitative evidence. The problem setting is used in translating a real-world business scenario into a mathematical equation or model by identifying relevant information, defining variables and structuring the problem using mathematical relationships to eventually find a solution. Evidence acquisition requires examination of financial data from charts, graphs, and statistical reports. Evidence evaluation is used to determine relevance to the specific context and to ensure well-founded decisions by analyzing the credibility, relevance, and significance of any information used to support conclusions. Students must utilize graphs, charts, tables, statistical measures and models to analyze and summarize data, and to identify patterns and trends. Students will analyze various investment opportunities by evaluating financial ratios, risk factors, time horizons and expected returns. Students will use mathematical models to create budgets, evaluate investment strategies and predict financial performance while considering the variables and potential risks involved. Students will recognize potential limitations of modeling a real-world problem, such as simplifying assumptions made to model the situation and considering data accuracy and reliability. Students will interpret results and explain the meaning of them in real-world business situations, including recognizing limitations and implications.

In the assessment provided, students must translate the real-world business scenario of maximizing a portfolio investment scheme into a mathematical maximization linear program by identifying the evidence provided and transforming it into appropriate variables with constraints and determining the objective function to be maximized. Several progressive steps requiring interpretation and analysis of a variety of quantitative information are required to solve the problem. Students must acquire evidence by constructing a graph to determine a feasibility region on which the objective function can be maximized and evaluating the objective function at appropriate values indicated by the Fundamental Theorem of Linear Programming. Finally, students will draw a conclusion by selecting the maximum value of the objective function.

Quantitative Reasoning. *Communication/Representation of Quantitative Information; Analysis of Quantitative Arguments; and Application of Quantitative Models*

In Business Math, students must use quantitative reasoning to interpret numerical data and make informed decisions based on numerical evidence. Quantitative information in Business Math comes in the form of stories, charts, equations, graphs, tables, statistical measures and models. Students must understand and represent basic mathematics including addition, subtraction, multiplication, division, decimals, fractions, and percentages to solve business-related application problems. Quantitative models and optimization algorithms are applied to analyze business-related data, identify patterns and predict future trends, discover relationships between variables, evaluate potential risks and optimize decision-making in a variety of contexts. Students must apply mathematical logic to analyze relationships between variables and make informed deductions for selecting appropriate formulas, algorithms or models to use. Students analyze various investment opportunities to assess potential returns and risks to determine the most financially sound option, dependent on context. Students must select appropriate quantitative data from surveys to understand customer behavior and market trends. Students apply basic linear programming to optimize production scheduling and resource allocation.

In the assessment provided, students are presented with a descriptive problem in which they must select a scheme to maximize portfolio investments. Several progressive steps requiring interpretation and analysis of a variety of quantitative information are required to solve the problem by applying the Fundamental Theorem of Linear Programming. Students must express quantitative information symbolically in the form of a quantitative linear programming maximization model, which requires defining variables, constructing a system of constraints on those variables and determining an objective function to maximize. Students must then create a graph to represent a feasible region described by their system of constraints. Students will interpret and analyze this information according to the Fundamental Theorem of Linear Programming. Finally, students will make informed deductions on the maximum value of the objective function and interpret those to optimize resource allocation in the investment portfolio problem.

Personal & Social Responsibility. *Intercultural reasoning and intercultural competence; Sustainability and the natural and human worlds; Ethical reasoning; Collaboration skills, teamwork and value systems; and Civic discourse, civic knowledge and engagement – local and global*

Information & Digital Literacy. *Authority and Value of Information; Digital Literacy; Information Structure; and Research as Inquiry*

D. Assessment (Must be on file with HED by August 1, 2019)

Link to Institution's General Education Assessment Plan	https://academic.wnmu.edu/wp-content/uploads/sites/82/2019/07/WNMU-General-Education-Assessment-Plan-2019-2020.pdf

Math 1150 Worksheet   Optimizing Returns on an Investment Portfolio
(20 points)

Goal: Use a maximum linear program to maximize the return on an investment portfolio.

Problem: An investor has up to $ 4,500 dollars to invest in two types of investments for one year. Type A pays 6% annually and type B pays 10% annually. To have a well-balanced portfolio, the investor imposes the following conditions. At least one-third of the total portfolio is to be allocated to type A investments and at least one-fourth of the portfolio is to be allocated to type B investments. What is the optimal amount that should be invested in each type of investment? What is the optimal return?

1. Use variables to represent the unknown quantities.

Let **a** = _____

Let **b** =_____

2. The objective function is the total return on investments, which we want to maximize. Write the objective function as an equation using the variables **a** and **b**.

The total return on investments is the return on investment A plus the return on investment B.

The return on investment A is _____

The return on investment B is _____

The objective function **F =** _____

3. Write the constraints as inequalities using only the variables **a** and **b**.

    At least one-half of the total portfolio is to be allocated to type A investments:

    At least one-fourth of the portfolio is to be allocated to type B investments:

    An investor has up to $4,500 dollars to invest:

    The amount invested in type A or in type B can not be negative:

4. Formulate the problem as a maximum linear program:

Maximize _____

Subject to:

    Constraint 1: _____

    Constraint 2: _____

    Constraint 3: _____

    Constraints 4 and 5: $a \geq 0, b \geq 0$

5. Graph the constraints and shade the feasible region, *i.e.* the region where all conditions are satisfied. Remember: the line for a constraint will divide the plane into two region, one of which satisfies the inequality part of the constraint. A test point is used to determine which portion of the plane to shade to satisfy the inequality. Any point on the plane that is not on the line can be used as a test point. Be sure to find and label coordinates of vertices, *i.e.* points where any two of the boundary lines intersect.

6. The Fundamental Theorem of Linear Programming states that the maximum (or minimum) value of the objective function always takes place at the vertices, or corner points, of the feasible region. Find the value of the objective function at each point of corner point to determine the corner point that gives the maximum value of **F**.

Corner Point (a, b)	F = 0.06a + 0.10b
(0, 0)	

7. What is the optimal amount that should be invested in each type of investment? What is the optimal return? Use a complete sentence to provide your answers.

Goal: Use a maximum linear program to maximize the return on an investment portfolio.

Problem: An investor has up to $ 4,500 dollars to invest in two types of investments for one year. Type A pays 6% annually and type B pays 10% annually. To have a well-balanced portfolio, the investor imposes the following conditions. At least one-third of the total portfolio is to be allocated to type A investments and at least one-fourth of the portfolio is to be allocated to type B investments. What is the optimal amount that should be invested in each type of investment? What is the optimal return?

1. Use variables to represent the unknown quantities.

Let **a** = _amount to invest in type A._____

Let **b** =__amount to invest in type B._____

2. The objective function is the total return on investments, which we want to maximize. Write the objective function as an equation using the variables **a** and **b**.

The total return on investments is the return on investment A plus the return on investment B.

The return on investment A is _____**0.06a**_____

The return on investment B is _____**0.10b**_____

The objective function **F** = _____**0.06a + 0.10b**_____

3. Write the constraints as inequalities using only the variables **a** and **b**.

At least one-half of the total portfolio is to be allocated to type A investments:
$$a \geq \frac{1}{3}(a + b) \quad \text{or} \quad \frac{2}{3}a \geq \frac{1}{3}b \quad \text{or} \quad 2a \geq b$$

At least one-fourth of the portfolio is to be allocated to type B investments:
$$b \geq 0.25(a + b) \quad \text{or} \quad 0.75b \geq 0.25a \quad \text{or} \quad 3b \geq a \quad \text{or} \quad b \geq \frac{1}{3}a$$

An investor has up to $4,500 dollars to invest:
$$a + b \leq 4500$$

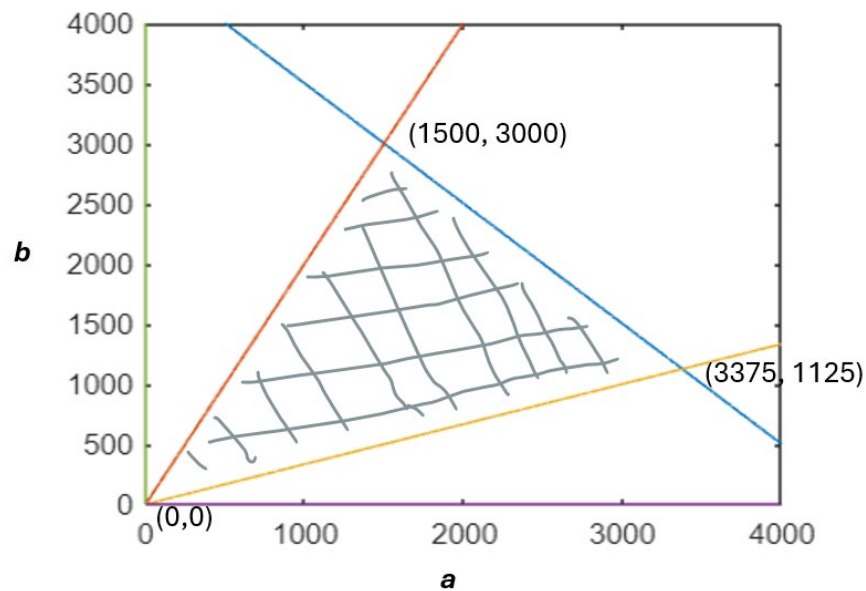The amount invested in type A or in type B can not be negative:
$$a \geq 0 \qquad b \geq 0$$

4. Formulate the problem as a maximum linear program:

Maximize _____**F = 0.06*a* + 0.10*b***_____

Subject to:

Constraint 1: _____ $2a \geq b$ _____

Constraint 2: _____ $b \geq \frac{1}{3}a$ _____

Constraint 3: _____ $a + b \leq 4500$ _____

Constraints 4 and 5: $a \geq 0, b \geq 0$

5. Graph the constraints and shade the feasible region, *i.e.* the region where all conditions are satisfied. Remember: the line for a constraint will divide the plane into two region, one of which satisfies the inequality part of the constraint. A test point is used to determine which portion of the plane to shade to satisfy the inequality. Any point on the plane that is not on the line can be used as a test point. Be sure to find and label coordinates of vertices, *i.e.* points where any two of the boundary lines intersect.

6. The Fundamental Theorem of Linear Programming states that the maximum (or minimum) value of the objective function always takes place at the vertices, or corner points, of the feasible region. Find the value of the objective function at each point of corner point to determine the corner point that gives the maximum value of **F**.

Corner Point (a, b)	F = 0.06*a* + 0.10*b*
(0, 0)	F = 0
(1500, 3000)	F = 390 **MAXIMUM**
(3375, 1125)	F = 315

7. What is the optimal amount that should be invested in each type of investment? What is the optimal return? Use a complete sentence to provide your answers.

The optimal return is $390 with $1,500 invested in type A and $3,000 invested in type B.

New Mexico General Education Curriculum Course Certification Form

Application Number ⬚ 2939

Institution and Course Information

Name of Institution	San Juan College
Chief Academic Officer Name	Dr. Michael Ottinger
Chief Academic Officer Email	ottingerm@sanjuancollege.edu
Registrar Name	Karen Doughty
Registrar Email	doughtyk@sanjuancollege.edu
Department	Registration and records
Prefix	ANTH
Number	2210
Suffix	
Title	Introduction to Archaeology
Number of Credits	3

Was this course previously part of the general education curriculum?

☒ Yes   ☐ No

Is this application for your system (ENMU, NMSU, & UNM)?

☐ Yes   ☒ No

Co-Requisite Course Information

Prefix	n/a
Number	n/a
Suffix	n/a
Title	n/a

New Mexico Common Course information

Prefix	ANTH
Number	2210
Suffix	
Title	Introduction to Archaeology

A. Content Area and Essential Skills

To which content area should this course be added? *Indicate "Other" if the course is not associated with one of the six NM General Education content areas.*

☐ Communications   ☐ Mathematics   ☐ Science   ☐ Social & Behavioral Sciences
☒ Humanities   ☐ Creative & Fine Arts   ☐ Flex

Which essential skills will be addressed?

☐ Communication   ☒ Critical Thinking   ☒ Information & Digital Literacy

☐ Quantitative Reasoning   ☒ Personal & Social Responsibility

B. Learning Outcomes

List all common course student learning outcomes for the course.

1. Distinguish archaeological remains from natural manifestations.
2. Prepare a survey map (field sketch).
3. Prepare excavation maps: site map, feature map, and profile map.
4. Understand the site grid and elevation system.
5. Set up excavation unit within a site grid.
6. Classify different types of artifacts.

List all institution-specific Student Learning Outcomes that are common to all course sections offered at the institutions regardless of instructor.

n/a

C. Narrative

In the boxes provided, write a short (~300 words) narrative explaining how the course weaves the essential skills associated with the content area throughout the course. Explain what students are going to do to develop the essential skills and how you will assess their learning. The narrative should be written with a general audience in mind and avoid discipline specific jargon as much as possible.

Be sure to address the component skills listed next to each essential skill. The number of component skills that must be addressed by your narrative is listed.

Communication. *Genre and Medium Awareness, Application and Versatility; Strategies for Understanding and Evaluating Messages; and Evaluation and Production of Arguments.*

Critical Thinking. *Problem Setting; Evidence Acquisition; Evidence Evaluation; and Reasoning/Conclusion*

Archaeology is built on a foundation of collecting evidence and using that evidence to find research-based answers to a question. Introduction to archaeology seeks to provide students with opportunities to think critically as a rule. Throughout the class students will be asked to participate in activities and complete assessments that require them collect a body of evidence that allows them to make a decision or come to a conclusion based on their collected evidence. Students will do this when they complete case study assignments that allow them to explore archaeological sites and work to determine the cultural importance of the site or the societal importance of the site. Critical thinking is also needed when they complete assignments that connect current archaeological news to the world around them and work to see the importance of archaeology as a whole and why what archaeologists do is important.

Students think critically when they complete their assignments and assessments. Throughout the assignments assessments, students are expected to answer questions in a variety of formats, including, short answer and essay questions. More importantly, through these questions, students are expected to synthesize information provided throughout the semester and use that information to form fact-based conclusions and explanations for how and why things in the archaeology world are that way.

Students are introduced to archaeological methods of excavation and survey. In this area, students will be provided with opportunities to interpret archaeological findings based on key concepts like context, which guides analysis based on where an artifact was found, and connecting time to the depth at which a structure is buried. Through these interconnected findings, students will begin to understand how archaeologists use context to recreate moments of historical importance from the past as well as to learn about and piece together information about societies that no longer exist, and determine the importance of past societies based on what can be learned from the elements of material culture that have been left behind.

Students must also write a final paper using at least five outside scholarly sources. Students will focus on the interpretation of a site based off of evidence that has been provided to them. Students must critically evaluate sources and interpret the site based on their own collected research as well as the information they have been given throughout the course of the semester. The paper must include citations in MLA or APA format.

Quantitative Reasoning. *Communication/Representation of Quantitative Information; Analysis of Quantitative Arguments; and Application of Quantitative Models*

Personal & Social Responsibility. *Intercultural reasoning and intercultural competence; Sustainability and the natural and human worlds; Ethical reasoning; Collaboration skills, teamwork and value systems; and Civic discourse, civic knowledge and engagement – local and global*

Introduction to archaeology includes, readings, and discussions, and research projects that will connect the field of archaeology to the greater goals of the field, which include the recording of culture, but also connect to concepts and ideas revolving around sustainability and the natural world. In many ways, archaeologists are attempting to understand what has happened in the past and the implications of those actions on the present and future. This includes elements like subsistence patterns, how people from the past were able to survive without the same access to resources, how past activities, such as the creation of irrigation systems and other aspects of technological innovation have affected the world now and how we can take from or improve those systems to be more sustainable that what we have currently, or make sure that we do not repeat the mistakes of past innovation.

Providing students with opportunities to work and discuss different aspects of the class together is also an important aspect of the course. Students are required to participate in meaningful discussions of various archaeological concepts throughout the semester. This helps students grasp core concepts, improve communication skills, learn how to communicate in a professional manner, and how to collaborate with a group of individuals with similar goals.

The course also addresses the ethics involved with archaeology, which requires students to engage in healthy discussions about these complex topics with classmates and interact with these issues on their own in their own mind through written assignments. The midterm exam for introduction to archaeology is based around researching and

providing a written account of ethical issues in the field of archaeology. Students are encouraged to research and discuss different perspectives based on their research, but also on through their own experiences within their cultures. We also explore and discuss the fact that archaeology, especially in the US is presented from a Westernized perspective, and how that view can be detrimental when looking at culture, specifically indigenous cultures around the world.

Information & Digital Literacy. *Authority and Value of Information; Digital Literacy; Information Structure; and Research as Inquiry*

This is under communication

Throughout the course, students will complete assignments and assessments that require them to integrate information from different areas and different aspects from the readings, videos, and activities presented in class. Students must complete a variety of written assignments that require them to think on the spot, interpret data, synthesize complex topics, and write well-organized essays.

Students also participate in class discussions that require use of both, class concepts and their own ideas to complete. The online course requires students to post and participate in graded discussions with their classmates on order to engage in discourse about pertinent points in the course that benefit from the sharing of ideas and clarification of salient points. These discussions take place throughout the semester and students are encouraged to continue the conversations beyond the class requirements at all times, but especially when the content is of particular interest.

For the midterm, students will research ethics in archaeology and ask students to discuss ethical issues in the field and how those issues might be addressed. The paper must include at least 5 scholarly sources and urges students to connect with the community (friends, family, elders, etc.) to bring in support for their research and to bring local focus to the issue of ethics in archaeology. The end result of their research being a paper written in MLA or APA format.

Student also complete a final paper in which the paper must be more than information gathering and present an interpretation of an archaeological site that is backed up by research coupled with their own reasoning. This interpretation must be presented in essay format and include properly formatted citations, including in-text, in MLA or APA format.

D. Assessment (Must be on file with HED by August 1, 2019)

Link to Institution's General Education Assessment Plan	https://www.sanjuancollege.edu/about/accreditation/

ANTH - 2210 - Intro to Archaeology

2025-26 Course Gen Ed Proposal

Notes/Instructions

Turn on Help Text

Please click on the icon of the "i" within a blue circle to 'Show Help Text.' It is located at the top-right of this pane within the proposal form.

All fields with an * are required. You will not be able to launch the proposal without completing required fields.

This revision form is ONLY for Gen Ed Approval for courses. If you wish to make changes to the course, changes must be approved first using the Course Revision form. After revisions are completely approved, the course can be submitted for Gen Ed Approval.
Please DO NOT change any course information in the Basic Information Block.
Attach a Syllabus to this Proposal.

Basic Course Information - DO NOT CHANGE

Department*
School of Humanities

Effective with Catalog*
2025-26

Subject*
ANTH

Course Number* 2210

Course Type*
Humanities/Behavioral/Social Sciences

Credit Hours* 3

Short Course Title* Intro to Archaeology

Long Course Title* Introduction to Archaeology

Course Description should include only the Description.
DO NOT include Terms Offered, Faculty Permission, or Requisites.
Details above are included in other places.

This is the description that will be published in the Academic Catalog and should also match the course description in the syllabus. Please check grammar, spelling, and content.

NOTE: If this course is matching a NM Common Course - you MUST use the state approved course description.

Course Description Introduces students to the basic concepts, methods, and theories of archaeology with particular emphasis on the nature of archeological evidence and its interpretation.

Requisites - DO NOT CHANGE

Prerequisite Definition - Course must be completed prior to this course.

Corequisites/Prerequisite - The course may be taken before or at the same time. If Before, select Corequisite. If a previously completed corequisite fulfills the requirement, select Either.

List course IDs of all prerequisites in the appropriate cells below.

LEAVE Prerequisite and Corequisite fields blank if there are no Requisites.

Prerequisite(s) ENGL 1110 and RNDG 099

Choose one for the next field   ◯ Corequisite   ◯ Either   ⦿ N/A

Corequisite(s) and/or Prerequisite(s)

Learning Objectives - Enter NA No Learning Objectives - Enter NA

HED Gen Ed Content Areas and Essential Skills

Was this course previously part of the New Mexico General Education curriculum?*   ◯ Yes   ⦿ No

To which area should this course be added? *

- ◯ Communication-Comm, Critical Thinking, Info & Digital Literacy
- ◯ Mathematics-Comm, Critical Thinking, Quantitative Reasoning
- ◯ Science-Critical Thinking, Personal&Soc Responsibility, Quantative Reasoning
- ⦿ Soc & Beh Sci-Comm, Critical Thinking, Personal & Social Responsibility
- ◯ Humanities-Info & Digital Literacy, Critical Thinking, Personal/Social Responsibility
- ◯ Creative & Fine Arts-Comm, Critical Thinking, Personal & Social Responsibility

Learning Outcomes

List all common course student learning outcomes for the course. *
1. Distinguish archaeological remains from natural manifestations. 2. Prepare a survey map (field sketch). 3. Prepare excavation maps: site map, feature map, and profile map. 4. Understand the site grid and elevation system. 5. Set up excavation unit within a site grid. 6. Classify different types of artifacts.

Narrative (3 Required)

In the box provided write a short (300 words) narrative explaining how the course weaves the essential skills associated with the content area throughout the course. Explain what students are going to do to develop the essential skills and how you will assess their learning. The narrative should be written with a general audience in mind and avoid discipline specific jargon as much as possible.

Be sure to address the component skills listed next to each essential skills. The number of component skills that must be addressed by your narrative is listed.

Narrative 1 - Essential Skill *
- ⦿ Communication
- ◯ Critical Thinking
- ◯ Information & Digital Literacy
- ◯ Quantative Reasoning
- ◯ Personal and Social Responsibility

Narrative 1* Throughout the course, students will complete assignments and assessments that require them to integrate information from different areas and different aspects from the readings, videos, and activities presented in class. Students must complete a variety of written assignments that require them to think on the spot, interpret data, synthesize complex topics, and write well-organized essays.

Students also participate in class discussions that require use of both, class concepts and their own ideas to complete. The online course requires students to post and participate in graded discussions with their classmates on order to engage in discourse about pertinent points in the course that benefit from the sharing of ideas and clarification of salient points. These discussions take place throughout the semester and students are encouraged to continue the conversations beyond the class requirements at all times, but especially when the content is of particular interest.

For the midterm, students will research ethics in archaeology and ask students to discuss ethical issues in the field and how those issues might be addressed. The paper must include at least 5 scholarly sources and urges students to connect with the community (friends, family, elders, etc.) to bring in support for their research and to bring local focus to the issue of ethics in archaeology. The end result of their research being a paper written in MLA or APA format.

Student also complete a final paper in which the paper must be more than information gathering and present an interpretation of an archaeological site that is backed up by research coupled with their own reasoning. This interpretation must be presented in essay format and include properly formatted citations, including in-text, in MLA or APA format.

Narrative 2 - Essential Skill*
- ◯ Communication
- ⦿ Critical Thinking
- ◯ Information & Digital Literacy
- ◯ Quantitative Reasoning
- ◯ Personal & Social Responsibility

Narrative 2* Archaeology is built on a foundation of collecting evidence and using that evidence to find research-based answers to a question. Introduction to archaeology seeks to provide students with opportunities to think critically as a rule. Throughout the class students will be asked to participate in activities and complete assessments that require them collect a body of evidence that allows them to make a decision or come to a conclusion based on their collected evidence. Students will do this when they complete case study assignments that allow them to explore archaeological sites and work to determine the cultural importance of the site or the societal importance of the site. Critical thinking is also needed when they complete assignments that connect current archaeological news to the world around them and work to see the importance of archaeology as a whole and why what archaeologists do is important.

Students think critically when they complete their assignments and assessments. Throughout the assignments assessments, students are expected to answer questions in a variety of formats, including, short answer and essay questions. More importantly, through these questions, students are expected to synthesize information provided throughout the semester and use that information to form fact-based conclusions and explanations for how and why things in the archaeology world are that way.

Students are introduced to archaeological methods of excavation and survey. In this area, students will be provided with opportunities to interpret archaeological findings based on key concepts like context, which guides analysis based on where an artifact was found, and connecting time to the depth at which a structure is buried. Through these interconnected findings, students will begin to understand how archaeologists use context to recreate moments of historical importance from the past as well as to learn about and piece together information about societies that no longer exist, and determine the importance of past societies based on what can be learned from the elements of material culture that have been left behind.

Students must also write a final paper using at least five outside scholarly sources. Students will focus on the interpretation of a site based off of evidence that has been provided to them. Students must critically evaluate sources and interpret the site based on their own collected research as well as the information they have been given throughout the course of the semester. The paper must include citations in MLA or APA format.

Narrative 3 - Essential Skill*
- ○ Communication
- ○ Critical Thinking
- ○ Information & Digital Literacy
- ○ Quantitative Reasoning
- ● Personal & Social Responsibility

Narrative 3* Introduction to archaeology includes, readings, and discussions, and research projects that will connect the field of archaeology to the greater goals of the field, which include the recording of culture, but also connect to concepts and ideas revolving around sustainability and the natural world. In many ways, archaeologists are attempting to understand what has happened in the past and the implications of those actions on the present and future. This includes elements like subsistence patterns, how people from the past were able to survive without the same access to resources, how past activities, such as the creation of irrigation systems and other aspects of technological innovation have affected the world now and how we can take from or improve those systems to be more sustainable that what we have currently, or make sure that we do not repeat the mistakes of past innovation.

Providing students with opportunities to work and discuss different aspects of the class together is also an important aspect of the course. Students are required to participate in meaningful discussions of various archaeological concepts throughout the semester. This helps students grasp core concepts, improve communication skills, learn how to communicate in a professional manner, and how to collaborate with a group of individuals with similar goals.

The course also addresses the ethics involved with archaeology, which requires students to engage in healthy discussions about these complex topics with classmates and interact with these issues on their own in their own mind through written assignments. The midterm exam for introduction to archaeology is based around researching and providing a written account of ethical issues in the field of archaeology. Students are encouraged to research and discuss different perspectives based on their research, but also on through their own experiences within their cultures. We also explore and discuss the fact that archaeology, especially in the US is presented from a Westernized perspective, and how that view can be detrimental when looking at culture, specifically indigenous cultures around the world.

Proposal Completed?

Scroll back to the top of this pane and click the right-directional triangle located at the top-left of this pane to LAUNCH your proposal.

If any required fields are incomplete, the form will highlight the required fields with a contrasting orange font color. Complete the required fields and again click the arrow to LAUNCH your proposal. <u>You can still make changes after Launching.</u>

Final Step - As originator, you will required to approve after launching. Any changes made after launching and before approving will be tracked. To approve, at the top of the form on the right select the circle with a check box and approve.

Changes made by any user will be tracked so that all viewers can discern suggestions to changes by person.

Steps for ANTH - 2210 - Intro to Archaeology

Originator
Status: *Approved*

Participants

✅ **Andrea Cooper** 10/22/2024 2:02 PM

▼

Dean
Status: *Rejected*

Participants

❌ **Eddy Rawlinson** 11/1/2024 2:06 PM

▼

Originator
Status: *Relaunched*

Participants

🟥 ✅ **Andrea Cooper** 11/4/2024 1:46 PM

▼

Originator
Status: *Approved*

Participants

✅ **Andrea Cooper** 11/4/2024 1:46 PM

▼

Dean
Status: *Approved*

Participants

✅ **Eddy Rawlinson** 11/4/2024 6:10 PM

▼

Registrar
Status: *Deadline Reached*

Participants

Karen Doughty

❌ **Jennifer Sheley** 11/6/2024 2:48 PM

✅ *Modern Campus (System Administrator)*
11/7/2024 12:50 AM

Curriculum Committee

Status: *Force Rejected*

Participants

▲ **Curriculum Committee**

 Teun Fetz *

▲ **Additional Participants**

Originator

Status: *Relaunched*

Participants

 Andrea Cooper

 ✅ *Jennifer Sheley (System Administrator)*
 11/7/2024 5:33 PM

Originator

Status: *Force Approved*

Participants

 Andrea Cooper

 ✅ *Jennifer Sheley (System Administrator)*
 11/7/2024 5:33 PM

Dean

Status: *Force Approved*

Participants

 Eddy Rawlinson

 ✅ *Jennifer Sheley (System Administrator)*
 11/7/2024 5:34 PM
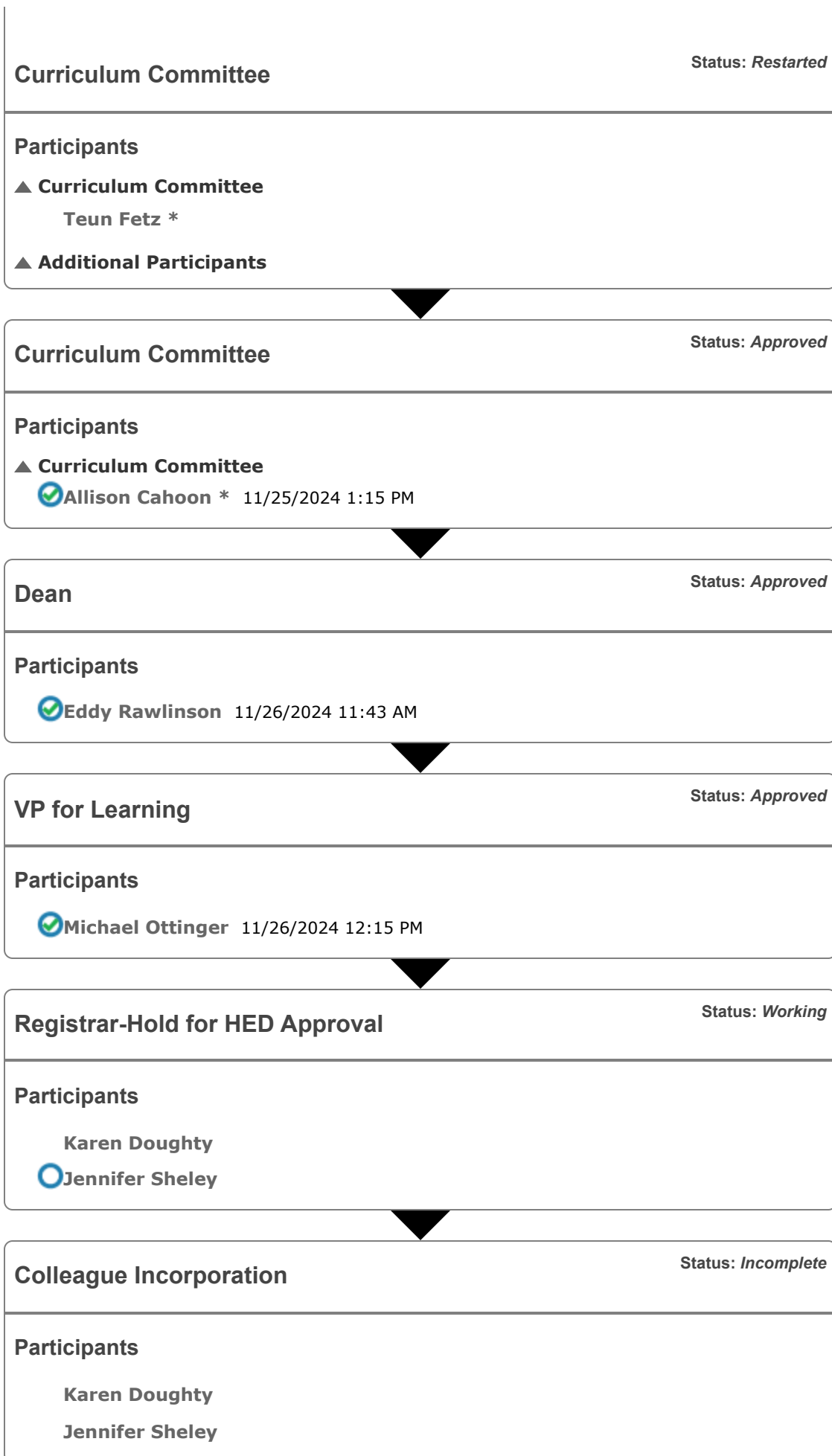
Registrar

Status: *Deadline Reached*

Participants

 Karen Doughty

 ✅ *Jennifer Sheley* 11/7/2024 5:35 PM

 ✅ *Modern Campus (System Administrator)*
 11/10/2024 12:45 AM

Curriculum Committee

Status: *Restarted*

Participants

▲ **Curriculum Committee**

    Teun Fetz *

▲ **Additional Participants**

Curriculum Committee

Status: *Approved*

Participants

▲ **Curriculum Committee**

    ✅**Allison Cahoon** * 11/25/2024 1:15 PM

Dean

Status: *Approved*

Participants

✅**Eddy Rawlinson** 11/26/2024 11:43 AM

VP for Learning

Status: *Approved*

Participants

✅**Michael Ottinger** 11/26/2024 12:15 PM

Registrar-Hold for HED Approval

Status: *Working*

Participants

    Karen Doughty

⭕**Jennifer Sheley**

Colleague Incorporation

Status: *Incomplete*

Participants

    Karen Doughty

    Jennifer Sheley

Attachments for ANTH - 2210 - Intro to Archaeology

ANTH2210SimpleSyllabus.pdf (uploaded by Karen Doughty, 11/22/2024 2:28 pm)

Comments for ANTH - 2210 - Intro to Archaeology

Modern Campus Curriculum	11/26/2024 12:15 pm **Reply**

Michael Ottinger has approved this proposal on VP for Learning.

Modern Campus Curriculum	11/26/2024 11:43 am **Reply**

Eddy Rawlinson has approved this proposal on Dean.

Modern Campus Curriculum	11/25/2024 1:15 pm **Reply**

Allison Cahoon has approved this proposal on Curriculum Committee.

Modern Campus Curriculum	11/22/2024 6:45 pm **Reply**

System Administrator Karen Doughty has restarted the Curriculum Committee step as a result of participants being added to or removed from the step.

Modern Campus Curriculum	11/22/2024 6:42 pm **Reply**

Allison Cahoon was added to the Curriculum Committee Chair role.

Karen Doughty	11/22/2024 2:28 pm **Reply**

Updated syllabus from originator has been uploaded.

Modern Campus Curriculum	11/10/2024 0:45 am **Reply**

This proposal has passed its deadline and has been approved.

Modern Campus Curriculum	11/7/2024 5:35 pm **Reply**

Jennifer Sheley has approved this proposal on Registrar.

Modern Campus Curriculum	11/7/2024 5:34 pm **Reply**

Jennifer Sheley has force approved this proposal.

Modern Campus Curriculum	11/7/2024 5:33 pm **Reply**

Jennifer Sheley has force approved this proposal.

Modern Campus Curriculum	11/7/2024 5:33 pm **Reply**

Jennifer Sheley has force approved this proposal.

Modern Campus Curriculum   11/7/2024 5:32 pm Reply

Jennifer Sheley has force rejected this proposal.

Modern Campus Curriculum   11/7/2024 0:50 am Reply

This proposal has passed its deadline and has been approved.

Jennifer Sheley   11/6/2024 2:48 pm 1 Reply | Reply

Student learning outcomes must match CCN student learning outcomes for ANTH 2120. 20% additional information can be added but nothing can be omitted. Syllabus needs description and student learning outcomes updated to CCN catalog. Also pre-req for ENGL 111 needs updated to ENGL 1110 on syllabus.

> **Jennifer Sheley**   11/7/2024 5:34 pm
>
> Please disregard this comment.

Modern Campus Curriculum   11/6/2024 2:48 pm Reply

Jennifer Sheley has rejected this proposal on Registrar.

Eddy Rawlinson   11/4/2024 6:10 pm Reply

No Change in Pre-Requisites

Modern Campus Curriculum   11/4/2024 6:10 pm Reply

Eddy Rawlinson has approved this proposal on Dean.

Modern Campus Curriculum   11/4/2024 1:46 pm Reply

Andrea Cooper has approved this proposal on Originator.

Andrea Cooper   11/4/2024 1:46 pm Reply

The pre-req is not changed in this proposal per the Dean's comments.

Modern Campus Curriculum   11/4/2024 1:46 pm Reply

Andrea Cooper has relaunched this proposal.

Eddy Rawlinson	11/1/2024 2:06 pm **Reply**

As this is a 2000 Level Course the students should have already completed ENGL 099 and RDNG 099, leading to completion of ENGL 1110.

The excepted assignments to be completed in this course also require the above courses to have been completed successfully, to support success in this course.

Thank you

Modern Campus Curriculum	11/1/2024 2:06 pm **Reply**

Eddy Rawlinson has rejected this proposal on Dean.

Modern Campus Curriculum	10/22/2024 2:02 pm **Reply**

Andrea Cooper has approved this proposal on Originator.

Modern Campus Curriculum	10/22/2024 2:00 pm **Reply**

Andrea Cooper has launched this proposal.

Signatures for ANTH - 2210 - Intro to Archaeology

Curriculum Committee	Status: *Approved*
✅ Allison Cahoon	11/25/2024

Dean	Status: *Approved*
✅ Eddy Rawlinson	11/26/2024

VP for Learning	Status: *Approved*
✅ Michael Ottinger	11/26/2024

Registrar-Hold for HED Approval	Status: *Incomplete*

Crosslistings for ANTH - 2210 - Intro to Archaeology

ANTH - 2210 - Intro to Archaeology (parent proposal)

This proposal does not have any active crosslisted proposals.

Decision Summary for ANTH - 2210 - Intro to Archaeology

Registrar-Hold for HED Approval

Status: *Working*

Step Summary

This step requires 100% approval from all participants to move forward.

Participants

Karen Doughty

⟳ Jennifer Sheley

Totals

Users Approved: *0*

Users Rejected: *0*

<u>**#1 Arch in the News**</u>

Topic: In class we have discussed "Archaeology in the News". For this assignment, you will draw on what you have learned in class and the news stories we have discussed. Be sure to address the following points in your paper:

(1) What **types** of archaeological stories or projects are *most likely* to be reported by the news media? What aspects of archaeological stories do media outlets **emphasize** in order to satisfy and **attract** readers?

(2) Summarize (in your own words) the news stories and video of the **Franklin** shipwreck and **at least one other** story you heard about in class. Be sure to describe the story and include details.

(3) Archaeological discoveries can raise **controversies** – particularly with respect to ownership of objects, territory, or culturally-specific views of the past. **Discuss** this issue with respect to the Franklin shipwreck. Explain why the ownership of this site is controversial. You may also write about a controversial issue raised in another news story but this must be in addition to the Franklin.

(4) Did these stories or stories give you a better understanding of **what archaeology is** and **what archaeologists do**? **How** specifically? Or if it did not give you a better understanding of archaeology/archaeologists, **explain why**.

(5) Do you think it's a **good** thing for archaeology to be in the news? Why or why not? E.g. Does it help inform the public about **"real" archaeology**? Is it portrayed **accurately**? Does it connect archaeology to **real world/relevant issues**?

(6) Finally, think back to the first day of class and what you thought archaeology was or what, if anything, you knew about archaeology. **Have your ideas changed? Stayed the same? How did "Archaeology in the News" influence your ideas?**

FORMAT GUIDELINES:
▪ Paper must be 1-2 pages, double spaced
▪ Pages must be numbered
▪ Correct spelling and grammar

GRADING RUBRIC:
Organization _____ / 5
• Is there a clear beginning, middle, and end to the paper?
Content _____ / 5
• Are there specific examples in the paper? Are they accurate?
Context _____ / 5
• Is the paper on topic?
Mechanics
• Has it been checked for grammar and spelling mistakes?

Total Score _____ / 20

Points	Score	Grade
20	100%	A+
19	95%	A
18	90%	A-
17	85%	B+
16	80%	B
15	75%	C+
14	70%	C
13	65%	D+
12	60%	D
>11	>55%	F

**NEW MEXICO
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DEPARTMENT**
Fostering Student Success from Cradle to Career

Michelle Lujan Grisham, *Governor*
Stephanie M. Rodriguez, *Cabinet Secretary*
Patricia Trujillo, *Deputy Secretary*

New Mexico General Education Curriculum Course Certification Form

Application Number | 2952 |

Institution and Course Information

Name of Institution	CNM
Chief Academic Officer Name	Amardeep Kahlon
Chief Academic Officer Email	akahlon@cnm.edu
Registrar Name	Glenn Damiani
Registrar Email	gdamiani@cnm.edu
Department	Registrar
Prefix	HNRS
Number	2364
Suffix	
Title	The Individual and the Collective
Number of Credits	3

Was this course previously part of the general education curriculum?

☒ Yes   ☐ No

Is this application for your system (ENMU, NMSU, & UNM)?

☐ Yes   ☒ No

Co-Requisite Course Information

Prefix	n/a
Number	n/a
Suffix	n/a
Title	n/a

New Mexico Common Course information

Prefix	HNRS
Number	2364
Suffix	
Title	The Individual and the Collective

A. Content Area and Essential Skills

To which content area should this course be added? *Indicate "Other" if the course is not associated with one of the six NM General Education content areas.*

☐ Communications   ☐ Mathematics   ☐ Science   ☒ Social & Behavioral Sciences

☐ Humanities   ☐ Creative & Fine Arts   ☐ Flex

Which essential skills will be addressed?

⊠ Communication ⊠ Critical Thinking ☐ Information & Digital Literacy

☐ Quantitative Reasoning ⊠ Personal & Social Responsibility

B. Learning Outcomes

List all common course student learning outcomes for the course.

Student Learning Outcomes

1. By the end of the course, students will be able to define social science and articulate how approaches vary across the disciplines.

2. By the end of the course, students will demonstrate a toolkit of social scientific theories and concepts.

3. By the end of the course, students will be able to examine empirical evidence using social science methods.

4. By the end of the course, students will be able to apply the theories and methods of the social sciences to identify, describe, and explain human behaviors and to critically evaluate how these behaviors are influenced by and influence social structure and the environment.

List all institution-specific Student Learning Outcomes that are common to all course sections offered at the institutions regardless of instructor.

C. Narrative

In the boxes provided, write a short (~300 words) narrative explaining how the course weaves the essential skills associated with the content area throughout the course. Explain what students are going to do to develop the essential skills and how you will assess their learning. The narrative should be written with a general audience in mind and avoid discipline specific jargon as much as possible.

Be sure to address the component skills listed next to each essential skill. The number of component skills that must be addressed by your narrative is listed.

Communication. *Genre and Medium Awareness, Application and Versatility; Strategies for Understanding and Evaluating Messages; and Evaluation and Production of Arguments.*

This seminar is a reading- and writing-intensive course designed to develop students' communication skills through critical reading, in-class discussions, presentations, and written arguments across various genres. Students enhance their genre and medium awareness by engaging with and producing texts in diverse forms, such as historical documents, academic essays, political manifestos, and newspaper articles. They learn to craft arguments tailored to different audiences and rhetorical contexts, including academic essays, verbal presentations, and letters to policymakers.

The course fosters strategies for understanding and evaluating messages by analyzing key social science texts, conducting research to identify and describe empirical evidence of specific social phenomena, and applying social scientific theories to substantiate claims and explain observed phenomena. Through seminar-style discussions of primary texts and written assignments, students refine their ability to evaluate and construct arguments. They practice developing their own claims by integrating social scientific theories with empirical evidence, drawing from

relevant literature and adhering to appropriate citation practices, such as Chicago Style or another recognized social science format.

For example, in the sample assignment, students must analyze themes across multiple texts, evaluate the authority of their sources, and construct an argument supported by evidence from the readings. This process requires them to tailor their analysis to an academic audience and integrate evidence effectively, demonstrating the communication skills emphasized in the course.

Critical Thinking. *Problem Setting; Evidence Acquisition; Evidence Evaluation; and Reasoning/Conclusion*

This course equips students with critical thinking skills through two primary approaches.

Engaging with foundational texts in social theory: Students read works by key figures in the social sciences, examining how these thinkers identify and address social problems or questions through theoretical frameworks. They critically analyze these texts for credibility, reliability, validity, and bias, as well as compare and contrast different perspectives. Additionally, students evaluate the relevance of these theories in addressing contemporary social issues, considering whether the theories remain applicable or require revision to better address current realities.

Investigating empirical social problems or questions: Students identify a specific social issue, gather evidence, and assess it for credibility, accuracy, and relevance. They apply social theories to analyze the problem and develop responses or solutions. By exploring multiple theoretical perspectives, students critically evaluate the applicability and usefulness of these ideas to their chosen issue, refining their ability to integrate theory with practical problem-solving.

For example, in the sample assignment, students must identify themes in the lives of activists, assess textual evidence for credibility and relevance, and construct well-reasoned conclusions about the interplay of social factors such as race, class, and gender. This analysis develops their ability to evaluate evidence and apply theoretical insights to real-world questions.

Quantitative Reasoning. *Communication/Representation of Quantitative Information; Analysis of Quantitative Arguments; and Application of Quantitative Models*

Personal & Social Responsibility. *Intercultural reasoning and intercultural competence; Sustainability and the natural and human worlds; Ethical reasoning; Collaboration skills, teamwork and value systems; and Civic discourse, civic knowledge and engagement – local and global*

In this course, students cultivate personal and social responsibility by researching an empirical problem or question. This process requires them to explore experiences beyond their own, fostering intercultural competence. By identifying and evaluating evidence related to their chosen issue, they enhance their intercultural reasoning skills. Students develop and articulate arguments about their social problem or question across various genres and media, building their capacity for civil discourse and engagement. Through seminar discussions, they further refine their ability to engage thoughtfully and respectfully in collaborative conversations. Critical thinking is emphasized as students examine the relationship between the individual and the collective, exploring how individuals fit into the

broader social world and applying social scientific reasoning to consider humanity's place in both natural and human systems.

By crafting arguments about their chosen problem, students first define its significance and then use social theories to propose solutions or responses, developing ethical reasoning skills. Classroom discussions and activities emphasize teamwork and collaboration, helping students recognize how different value systems shape interpersonal interactions and collective decision-making.

For example, in the sample assignment, students analyze the lives and contributions of diverse activists, examining how their experiences intersect with broader social issues like race, gender, and class. This task deepens intercultural competence and ethical reasoning by encouraging students to engage with multiple perspectives and evaluate how collective action can address systemic inequities.

Information & Digital Literacy. *Authority and Value of Information; Digital Literacy; Information Structure; and Research as Inquiry*

D. Assessment (Must be on file with HED by August 1, 2019)

Link to Institution's General Education Assessment Plan	https://www.cnm.edu/depts/academic-affairs/saac/gen-ed-assessment-plan

HNRS 2364 - 101
Individual & Collective

GUIDELINES FOR FINAL PROJECT

The final project is an essay of nine to ten pages, one-inch margins, double-spaced.

The only sources you will need for this paper are the readers we have used throughout the semester (*Lighting the Way*, *Triangle*, *Quiet Strength*, *A Girl Stands at the Door*, and *Tomorrow Will Be Different*).

Using at least three of the readers, explore two or three themes/topics of your choice.

For example, you might look at how themes of race/ethnicity, gender, and social class have shaped the lives of political activists. Here you could center your discussions on Sarah McBride, Rosa Parks, and one of the activists discussed in *Lighting the Way* (such as Alice Hamilton).

Another idea: You might compare/contrast public health activists, labor reformers, and integration pioneers.

Yet another take: You could explore the attributes of effective activists, such as resilience, negotiating skills, and compassion, and see how those characteristics play out in the lives of different reformers.

These are just suggestions. The possibilities of topics are many, and are up to you.

For this project, feel free to build on one or more of your response papers for the semester.

Structure of the paper:

First paragraph

--"Hook" the reader's interest - this could be a brief quote or scene from one of the readings.

--Briefly summarize the readings you are addressing. (A good rule of thumb: imagine you are writing for someone who doesn't know anything about the topics/readers you are addressing. This will help you to be thorough, detailed and substantive in your writing.)

--Thesis statement: overview of your paper - list the themes you will be analyzing.

Body of paper

--Discuss each of your themes in order. It's a good idea to illustrate your arguments with specific passages from your sources. At the same time, you don't want to overwhelm your paper with quotations; strive for a balance between what the sources have to say and your analysis.

--Direct quotes as well as paraphrased information should be fully cited.

--As long as you are consistent, you can use the citation format of your choice.

--For example, footnote format based on the *Chicago Manual of Style*:

1. John Doe, <u>A Discussion of Gender in Homer's Odyssey</u> (Albuquerque: University of Albuquerque Press, 1995), 23-25.

Conclusion

--Briefly summarize points made in your paper, and emphasize why it is important to know about the themes you have discussed.

Total points possible for this assignment = 300

Final projects are due Tuesday, December 3.

Rubric for Final Project: The Individual and the Collective

1. Exploration of Themes and Sources

- **Exemplary (25-30 points)**: Essay effectively identifies and communicates themes in a coherent, well-organized manner. Demonstrates strong awareness of audience, purpose, and context. Integrates and evaluates sources ethically, using consistent and appropriate citation practices.
- **Proficient (20-24 points)**: Essay is organized and appropriate to the audience and purpose. Uses sources effectively but may have minor citation or integration inconsistencies.
- **Developing (15-19 points)**: Essay shows some awareness of purpose and context but lacks clear organization or focus. Source integration is uneven, with noticeable citation errors.
- **Needs Improvement (0-14 points)**: Essay lacks focus, clear purpose, or effective integration of sources. Citation errors are frequent or absent.

2. Depth of Analysis and Critical Insight

- **Exemplary (25-30 points)**: Essay clearly delineates themes and questions, identifies relevant and credible evidence, and evaluates it thoroughly. Conclusions are insightful, informed, and well-reasoned.
- **Proficient (20-24 points)**: Themes and evidence are identified and evaluated, though analysis may lack depth. Conclusions are reasonable and mostly supported by evidence.
- **Developing (15-19 points)**: Themes and evidence are loosely connected or inadequately evaluated. Conclusions may be present but are insufficiently developed.
- **Needs Improvement (0-14 points)**: Essay lacks clear themes or analysis. Evidence is minimal or irrelevant. Conclusions are missing or unfounded.

3. Engagement with Broader Contexts and Implications

- **Exemplary (25-30 points)**: Essay examines social, cultural, and/or ethical issues with depth and nuance. Demonstrates intercultural reasoning and recognizes multiple perspectives. Discusses themes' broader implications effectively.
- **Proficient (20-24 points)**: Essay addresses social, cultural, and ethical issues clearly. Shows awareness of multiple perspectives, though analysis may be surface-level.
- **Developing (15-19 points)**: Essay mentions social, cultural, or ethical issues but lacks depth or multiple perspectives. Analysis may oversimplify complex issues.
- **Needs Improvement (0-14 points)**: Essay does not address social, cultural, or ethical issues meaningfully. Analysis lacks awareness of diverse perspectives.

4. Writing Quality (Clarity, Style, and Grammar)

- **Exemplary (15-20 points)**: Writing is clear, well-structured, and free of errors. Style is engaging and appropriate for an academic audience.
- **Proficient (10-14 points)**: Writing is mostly clear and structured, with minor errors. Style is appropriate but may lack engagement.
- **Developing (5-9 points)**: Writing has frequent errors that affect clarity and structure. Style

may be inconsistent or inappropriate.
- **Needs Improvement (0-4 points)**: Writing is unclear, unstructured, or riddled with errors, significantly affecting readability.

Point Distribution

- Exploration of Themes and Sources: 90 points
- Depth of Analysis and Critical Insight: 90 points
- Engagement with Broader Contexts and Implications: 90 points
- Writing Quality: 30 points

Total: **300 points**

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Michelle Lujan Grisham, *Governor*
Stephanie M. Rodriguez, *Cabinet Secretary*
Patricia Trujillo, *Deputy Secretary*

New Mexico General Education Curriculum Course Certification Form

Application Number | 2953 |

Institution and Course Information

Name of Institution	CNM
Chief Academic Officer Name	Amardeep Kahlon
Chief Academic Officer Email	akahlon@cnm.edu
Registrar Name	Glenn Damiani
Registrar Email	gdamiani@cnm.edu
Department	Registrar
Prefix	BIOL
Number	2151
Suffix	
Title	Medical Imaging Anatomy & Physiology I
Number of Credits	4

Was this course previously part of the general education curriculum?

☐ Yes   ☒ No

Is this application for your system (ENMU, NMSU, & UNM)?

☐ Yes   ☒ No

Co-Requisite Course Information

Prefix	n/a
Number	n/a
Suffix	n/a
Title	n/a

New Mexico Common Course information

Prefix	BIOL
Number	2151
Suffix	
Title	Medical Imaging Anatomy & Physiology I

A. Content Area and Essential Skills

To which content area should this course be added? *Indicate "Other" if the course is not associated with one of the six NM General Education content areas.*

☐ Communications   ☐ Mathematics   ☒ Science   ☐ Social & Behavioral Sciences

☐ Humanities   ☐ Creative & Fine Arts   ☐ Flex

Which essential skills will be addressed?

      ☐ Communication   ☒ Critical Thinking   ☐ Information & Digital Literacy

      ☒ Quantitative Reasoning   ☒ Personal & Social Responsibility

B. Learning Outcomes

List all common course student learning outcomes for the course.

1. Explain processes of biology, including an exploration of the scientific method
2. Apply basic chemistry to the biology of cells
3. Describe the structures and functions associated with eukaryotic cells
4. Describe DNA structure
5. Explain the central dogma of gene expression
6. Apply mechanisms of cellular metabolism to how muscles function in the body
7. Describe mitosis and meiosis
8. Explain homeostasis and identify tissues, organs, and organ systems along with their functions
9. Describe and apply anatomical terminology
10. Describe structure and function of integumentary, skeletal, muscular, nervous system, and special senses
11. Apply learned knowledge of organ anatomy, skeletal system, and nervous system to solve case studies using medical images that include x-rays, MRIs, ultrasound, and EEGs

List all institution-specific Student Learning Outcomes that are common to all course sections offered at the institutions regardless of instructor.

C. Narrative

In the boxes provided, write a short (~300 words) narrative explaining how the course weaves the essential skills associated with the content area throughout the course. Explain what students are going to do to develop the essential skills and how you will assess their learning. The narrative should be written with a general audience in mind and avoid discipline specific jargon as much as possible.

Be sure to address the component skills listed next to each essential skill. The number of component skills that must be addressed by your narrative is listed.

Communication. *Genre and Medium Awareness, Application and Versatility; Strategies for Understanding and Evaluating Messages; and Evaluation and Production of Arguments.*

Critical Thinking. *Problem Setting; Evidence Acquisition; Evidence Evaluation; and Reasoning/Conclusion*

Students are provided with a clinical case study where a young adult patient in the Emergency Room has injured his knee while playing soccer. They delineate the problems that the patient is experiencing and communicate them in written form, develop a well-reasoned hypothesis as to what the patient has injured, and then determine what tests can be done/ordered to confirm or reject their hypothesis. Students are given visualizations (images of a healthy

knee joint and the injured patient's knee joint) to evaluate the relevance and credibility of typical visualizations compared to the clinical presentation of the patient and the patient's rendition of the events that lead to the injury. They will then use this data to develop a well-reasoned conclusion regarding the nature of the patient's injury. Students will evaluate 1.) the tissues that comprise the knee joint, 2.) the function of each tissue, 3.) tissues that are implicated in knee injuries, 4.) the normal function of pertinent tissues, 5.) what a knee injury of the kind that this patient sustained may do to those tissues, and 6.) how the differences between the images of a healthy knee joint and the patient's injured knee joint support their conclusions. Using a class discussion format, students present their findings as well as their rationale for drawing their conclusions. Students are assessed on their evaluation of their presented data, their conclusions based on their stated rationale, and their descriptions and explanations of all the tissues that make up the knee joint and their functions.

Quantitative Reasoning. *Communication/Representation of Quantitative Information; Analysis of Quantitative Arguments; and Application of Quantitative Models*

Students measure the length of their tibia and their height. The measurement of the tibia is based on learned anatomical bone features: tibial tuberosity and medial malleolus. Students determine the independent and dependent variable based on the provided question "Can tibia length predict height?" Hypotheses are formulated and students graph X and Y values to either support or refute hypotheses. Students examine if plotted data shows a linear trend by applying the formula for a basic line: $y=mx+b$. While examining literature, students discuss and explain the concept of correlation and how individual bone measurements are extrapolated to predict body sizes. Students are assessed on accurately determining which variable is the independent versus dependent variable, formulating an appropriate hypothesis, correctly graphing classroom data, and correctly explaining if there is a correlation that either supports or refutes their hypothesis. Additional assessment involves students interpreting, analyzing, and critiquing literature about body measurements that predict body size.

Personal & Social Responsibility. *Intercultural reasoning and intercultural competence; Sustainability and the natural and human worlds; Ethical reasoning; Collaboration skills, teamwork and value systems; and Civic discourse, civic knowledge and engagement – local and global*

Students are organized into groups to research the topic regarding the ethics of how James Watson and Francis Crick developed their Nobel Prize-winning model of the structure of DNA. They present their findings to the class in a brief (5-10 minutes) oral presentation with a corresponding short paper. Topics may include how X-ray crystallography data was obtained from Rosalind Franklin, the competitions they faced with other researchers such as Linus Pauling, their collaborative work with other scientists at Cambridge and the discrimination Dr. Franklin faced at Birkbeck, University of London, as she performed her research. Students are assessed on their collaborative work as a group, the depth of research from primary and secondary sources of literature, the ability to write their paper with clarity and accuracy, and their presentation is evaluated with a rubric that includes the ability to organize and present their ideas clearly as well as the quality of their visual aids used.

Information & Digital Literacy. *Authority and Value of Information; Digital Literacy; Information Structure; and Research as Inquiry*

D. Assessment (Must be on file with HED by August 1, 2019)

Link to Institution's General Education Assessment Plan	https://www.cnm.edu/depts/academic-affairs/saac/gen-ed-assessment-plan

Tibia length versus Height Study Assignment (20 points)   Name:_____

1. What is your hypothesis for if the tibia length can predict a person's height? (5 pts)

2. Graph the tibia length and height data from your class. You can do this either with graph paper or in excel. (5 pts)

Paste your graph below.

Correctly identifying independent and dependent variables within graph is an additional 5 pts.

3. Does the data support or not support your hypothesis? Yes or No?

4. How does it either support or not support your hypothesis? Apply what you learned about correlations from the literature study to answer this question. (5 pts)

Rubric for Tibia Length and Height Study Assignment

Criteria	Excellent 5 pts	Good 4 pts	Fair 3 pts	Unsatisfactory 2-0pts
Hypothesis	Is presented as an if/then statement while providing an explanation that answers the question if tibia length predicts height	If/then statement without explanation that answers the question OR an explanation that answers the question but no if/then statement	Provided a hypothesis but is not an if/then statement nor does it provide an explanation	Didn't do (0 pts)
Graph	Has a title, labeled the axes, axes' ranges make sense, has a trend line if data shows a correlation, and is readable	Labeled the axes, has a trend line if data shows a correlation, and is readable	Labeled the axes and is readable	Didn't do (0 pts) or has a graph that is missing labels and therefore is difficult to interpret (2 pts)
Independent versus Dependent variable	Correctly identified both variables	Used appropriate variables, but incorrectly identified which one is the independent versus dependent variable	Only correctly identified one variable, and used a variable that is unrelated to study	Didn't do (0 pts) or Both variables are unrelated to study (2 pts)
Support using concept of correlation	Correctly interpreted graph data while applying the concept of correlation	Interpreted graph correctly but did not correctly explain or apply the concept of correlation	Didn't interpret graph correctly, but did correctly explain the concept of correlation	Didn't do (0 pts) or Didn't interpret graph correctly and didn't explain the concept of correlation (2 pts)

**NEW MEXICO
HIGHER EDUCATION
DEPARTMENT**

Fostering Student Success from Cradle to Career

Michelle Lujan Grisham, *Governor*
Stephanie M. Rodriguez, *Cabinet Secretary*
Patricia Trujillo, *Deputy Secretary*

New Mexico General Education Curriculum Course Certification Form

Application Number   2954

Institution and Course Information

Name of Institution	CNM
Chief Academic Officer Name	Amardeep Kahlon
Chief Academic Officer Email	akahlon@cnm.edu
Registrar Name	Glenn Damiani
Registrar Email	gdamiani@cnm.edu
Department	Registrar
Prefix	BIOL
Number	2161
Suffix	
Title	Medical Imaging Anatomy & Physiology II
Number of Credits	4

Was this course previously part of the general education curriculum?

☐ Yes   ☒ No

Is this application for your system (ENMU, NMSU, & UNM)?

☐ Yes   ☒ No

Co-Requisite Course Information

Prefix	n/a
Number	n/a
Suffix	n/a
Title	n/a

New Mexico Common Course information

Prefix	BIOL
Number	2161
Suffix	
Title	Medical Imaging Anatomy & Physiology II

A. Content Area and Essential Skills

To which content area should this course be added? *Indicate "Other" if the course is not associated with one of the six NM General Education content areas.*

☐ Communications   ☐ Mathematics   ☒ Science   ☐ Social & Behavioral Sciences

☐ Humanities   ☐ Creative & Fine Arts   ☐ Flex

Which essential skills will be addressed?

        ☐ Communication   ☒ Critical Thinking   ☐ Information & Digital Literacy

        ☒ Quantitative Reasoning   ☒ Personal & Social Responsibility

B. Learning Outcomes

List all common course student learning outcomes for the course.

1. Describe and identify chemistry concepts while applying the autonomic nervous system to understanding homeostasis of organ systems.
2. Explain how fluid and electrolyte balance is maintained in the human body.
3. Describe the structure and function of the endocrine, cardiovascular, respiratory, digestive, urinary, and reproductive systems.
4. Apply learned knowledge of cardiovascular, digestive, urinary, endocrine and reproductive systems to solve case studies using medical images that include x-rays, MRIs, ultrasound, and EEGs
5. Describe pregnancy from conception to parturition including human growth and development from zygote to newborn.

List all institution-specific Student Learning Outcomes that are common to all course sections offered at the institutions regardless of instructor.

C. Narrative

In the boxes provided, write a short (~300 words) narrative explaining how the course weaves the essential skills associated with the content area throughout the course. Explain what students are going to do to develop the essential skills and how you will assess their learning. The narrative should be written with a general audience in mind and avoid discipline specific jargon as much as possible.

Be sure to address the component skills listed next to each essential skill. The number of component skills that must be addressed by your narrative is listed.

Communication. *Genre and Medium Awareness, Application and Versatility; Strategies for Understanding and Evaluating Messages; and Evaluation and Production of Arguments.*

Critical Thinking. *Problem Setting; Evidence Acquisition; Evidence Evaluation; and Reasoning/Conclusion*
Students are provided with a clinical case study where an older patient with a history of high serum cholesterol levels, high blood pressure, and smoking comes to the Emergency Room (ER) complaining of chest pain, shortness of breath, and numbness radiating throughout the lower jaw and left arm. They delineate the problems that the patient is experiencing and communicate them in written form, develop a well-reasoned hypothesis as to what is causing the patient's signs and symptoms, and then determine what procedures and tests can be done/ordered to confirm or reject their hypothesis. Students are given normal blood test results, normal blood pressure and heart rate data, a simple EKG strip and visualizations (images/videos of healthy blood flow through arteries in the heart and

images/videos of blood flow through the arteries in the heart of the ER patient) to evaluate the relevance and credibility of normal tests and data and compare those with patient's tests and data. They will then develop a well-reasoned conclusion regarding the nature of the patient's signs and symptoms. Students will evaluate 1.) cardiac anatomy and function, 2.) blood vessel anatomy and function, 3.) cardiac electrophysiology and function, 4.) what kinds of cardiovascular pathologies are associated with high cholesterol levels, high blood pressure, and smoking, and 5.) how the differences between normal test results and normal images/videos regarding blood flow through the arteries in the heart and those of the patient corroborate their conclusions about what this patient is experiencing and why. Using a class discussion format, students present their findings as well as their rationale for drawing their conclusions. Students are assessed on their evaluation of their presented data, their conclusions based on their stated rationale, and their descriptions and explanations of all the applicable cardiovascular anatomy and physiology in the context of the patient's medical condition.

Quantitative Reasoning. *Communication/Representation of Quantitative Information; Analysis of Quantitative Arguments; and Application of Quantitative Models*

Students apply the modified Simpson's method to calculate cardiac ejection fraction. The ejection fraction is the percentage of blood pumped by the left ventricle during a single contraction. This method involves tracing the border of the endocardium in two planes, as seen in an echocardiogram. End diastolic volume and end systolic volume are derived from the two tracings. Students calculate ejection fractions for a healthy and unhealthy person. From the two calculations, students create a bar graph that compares the ejection fractions between a healthy and unhealthy individual. In addition, students determine if calculated ejection fractions are within the normal range by referencing ejection fraction tables. Students are assessed on accurately calculating ejection fractions, correctly graphing healthy and unhealthy ejection fractions, and correctly interpreting graphed data. Students are also assessed by their determinations of whether the ejection fractions are within the normal range and their explanations of what it means if the ejection fraction is typical and if it is atypical.

Personal & Social Responsibility. *Intercultural reasoning and intercultural competence; Sustainability and the natural and human worlds; Ethical reasoning; Collaboration skills, teamwork and value systems; and Civic discourse, civic knowledge and engagement – local and global*

Students are presented with a case study of two patients, one age 40 and the other, age 60, both of whom need a new heart. The forty-year-old is a former drug user with a young family and the sixty-year-old is an award-winning scientist and author whose work has contributed much to the benefit of society. Students research the requirements for transplant surgery and learn the ethics of determining how patients are ranked on a transplant waitlist, and then debate with each other in class why only one of the two patients should receive a newly-available heart. They are evaluated with a rubric that includes their preparation to debate, the organization and presentation of their arguments, the strength of their arguments and their ability to adequately provide rebuttals.

Information & Digital Literacy. *Authority and Value of Information; Digital Literacy; Information Structure; and Research as Inquiry*

D. Assessment (Must be on file with HED by August 1, 2019)

Link to Institution's General Education Assessment Plan	https://www.cnm.edu/depts/academic-affairs/saac/gen-ed-assessment-plan

Heart Transplant Case Study Assignment

Case Overview: In this assignment, you will explore the challenging ethical decisions involved in determining the allocation of limited medical resources, specifically heart transplants. Below are two hypothetical patients in need of a new heart, with limited resources meaning that only one can receive the transplant. You will research, analyze, and debate using real-world ethical frameworks and considerations.

Case Details

Patient Profiles:

1. **Patient A**: A 40-year-old former drug user who has recently recovered from addiction and has a young family depending on them.

2. **Patient B**: A 60-year-old award-winning scientist and author whose work has contributed significantly to societal advancements.

Assignment Task:

Determine which patient should receive the heart transplant and justify your choice. In doing so, you should:

- Research the medical criteria and ethical considerations used in prioritizing organ transplant recipients.

- Analyze the ethical frameworks that may influence decision-making, including principles like utility, justice, respect for persons, and beneficence.

- Understand the legal and medical guidelines that impact transplant prioritization.

Preparation Instructions:

1. **Research**: Explore resources on heart transplant processes, eligibility requirements, and factors that affect transplant waitlist prioritization.

2. **Analyze Ethical Frameworks**: Learn and review key ethical theories such as utilitarianism, deontology, and virtue ethics, and apply these to each patient's case.

3. **Prepare Debate Materials**: Prepare a written summary of your position, including three main points that support your argument and potential rebuttals for opposing views.

Class Debate Format:

1. **Opening Statements**: Each student (or team) will present an opening statement outlining their position on which patient should receive the transplant.

2. **Supporting Arguments**: Present three main arguments supporting their position.

3. **Rebuttals**: Respond to counterarguments presented by the opposing side.

4. **Closing Statements**: Summarize and reinforce key points, highlighting why their chosen patient should receive the transplant.

Evaluation Rubric:

Criteria	Excellent (5)	Good (4)	Satisfactory (3)	Needs Improvement (1-2)
Preparation	Demonstrates thorough research and clear understanding of transplant requirements and ethics.	Demonstrates good preparation, though some aspects may lack depth.	Shows basic preparation; limited detail or unclear points.	Little to no evidence of preparation; lacks clarity on transplant issues.
Argument Organization	Arguments are highly organized, logical, and easy to follow.	Arguments are organized, mostly logical, and understandable.	Arguments have some organization but are difficult to follow.	Arguments are disorganized and unclear.
Argument Strength	Provides three compelling and well-supported arguments with evidence.	Provides two to three strong arguments with moderate support.	Provides one to two arguments with minimal support.	Weak arguments lacking support or clarity.
Rebuttals	Effectively addresses counterarguments with strong, relevant rebuttals.	Addresses counterarguments with some relevant rebuttals.	Provides basic rebuttals, some relevant to the discussion.	Few or no rebuttals; lacks relevance to arguments made.

Submission Requirements:

- **Research Notes**: Summarized notes on research findings.

- **Argument Outline**: Main points, ethical framework, and evidence supporting their chosen patient.

This case study encourages students to grapple with the moral complexity and gravity of real-life medical decisions, helping them to develop both intellectual rigor and empathy.

![New Mexico Higher Education Department logo]

New Mexico General Education Curriculum Course Certification Form

Application Number | 2958 |

Institution and Course Information

Name of Institution	WNMU
Chief Academic Officer Name	William Crocker
Chief Academic Officer Email	William.Crocker@wnmu.edu
Registrar Name	Susan Russell
Registrar Email	Susan.Russell@wnmu.edu
Department	Academic Affairs
Prefix	ALAS
Number	1840
Suffix	
Title	Ethnic Studies
Number of Credits	3

Was this course previously part of the general education curriculum?

☐ Yes   ☒ No

Is this application for your system (ENMU, NMSU, & UNM)?

☒ Yes   ☐ No

Co-Requisite Course Information

Prefix	n/a
Number	n/a
Suffix	n/a
Title	n/a

New Mexico Common Course information

Prefix	ALAS
Number	1840
Suffix	
Title	Ethnic Studies

A. Content Area and Essential Skills

To which content area should this course be added? *Indicate "Other" if the course is not associated with one of the six NM General Education content areas.*

☐ Communications   ☐ Mathematics   ☐ Science   ☐ Social & Behavioral Sciences

☐ Humanities   ☐ Creative & Fine Arts   ☒ Flex

Which essential skills will be addressed?

      ☐ Communication   ☒ Critical Thinking   ☒ Information & Digital Literacy

      ☐ Quantitative Reasoning   ☒ Personal & Social Responsibility

B. Learning Outcomes

List all common course student learning outcomes for the course.

Course-specific By the end of the course, students shall

1. Learn the complexity of race and ethnic relations in the U.S. and globally;

2. Understand the most pressing challenges in regard to race and ethnic relations;

3. Analyze the historical, political, societal, literary, and economic contexts in which race and ethnic relations have been created;

4. Apprehend how intersecting identities such as gender and sexuality influence lived experiences of inequality, oppression, and marginalization;

5. Recognize the importance of equity, freedom, and justice as guiding principles in activism and social movement(s);

6. Practice interdisciplinarity, collaboration, and sustained inquiry in the pursuit of knowledge and truth.

List all institution-specific Student Learning Outcomes that are common to all course sections offered at the institutions regardless of instructor.

n/a

C. Narrative

In the boxes provided, write a short (~300 words) narrative explaining how the course weaves the essential skills associated with the content area throughout the course. Explain what students are going to do to develop the essential skills and how you will assess their learning. The narrative should be written with a general audience in mind and avoid discipline specific jargon as much as possible.

Be sure to address the component skills listed next to each essential skill. The number of component skills that must be addressed by your narrative is listed.

Communication. *Genre and Medium Awareness, Application and Versatility; Strategies for Understanding and Evaluating Messages; and Evaluation and Production of Arguments.*

Critical Thinking. *Problem Setting; Evidence Acquisition; Evidence Evaluation; and Reasoning/Conclusion*

For skill development, students are presented weekly with various propositions that they must defend or challenge in discussions. The propositions are succinct, requiring interpretation and explanation of key concepts (problem definition). For example: "We are currently living in a post-racial society." Based on analysis of pertinent, authoritative sources such as testimonies, census data, federal statutes, and court cases that the students identify and assemble (evidence acquisition and evaluation), they develop robust arguments to persuade peers that the proposition is an accurate depiction (or not) of race/ethnic relations (reasoning/conclusion).

For assessment—building on Critical Thinking skills during weekly discussions—students conduct a media analysis throughout the latter half of the semester. Each student develops a specific question/thesis about how media report on race and ethnicity-related issues. The issues are selected from an existing list of several topics prepared by the instructors—e.g., migration across the southern border. There are more students than topics, which implies that several students explore the same topic (in preparation for group work that is designed to assess Personal and Social Responsibility).

Students contextualize their question/thesis by highlighting the gravity and scope of the issue, key actors, and any other relevant information (problem definition). Subsequently, students collect 8-10 news articles (e.g., from newspapers of record) (evidence acquisition). They then verify the credibility of the sources (evidence evaluation) and synthesize, guided by the questions below, salient evidence extracted from the articles to draw conclusions (reasoning/conclusion). The questions are

1)   Are racial/ethnic or other social identity stereotypes challenged or reinforced? Explain.
2)   What, if any, dominant narratives are reinforced? Which narratives are elided? Explain.
3)   What are the consequences of such reporting?

An instructional emphasis is to relate the content and Critical Thinking to make sense of complex matters with the aim of social change.

Quantitative Reasoning. *Communication/Representation of Quantitative Information; Analysis of Quantitative Arguments; and Application of Quantitative Models*

Personal & Social Responsibility. *Intercultural reasoning and intercultural competence; Sustainability and the natural and human worlds; Ethical reasoning; Collaboration skills, teamwork and value systems; and Civic discourse, civic knowledge and engagement – local and global*

While the course emphasizes several components of personal and social responsibility, it throws into sharp relief intercultural reasoning and competence, and collaboration skills, teamwork, and value systems. Our value system is creating a shared purpose and improving interpersonal communication in group presentations of the media analysis assignment during the final two weeks of the semester. Students work in teams on a presentation focused on selected topics prepared by course instructors.

A PowerPoint presentation is the culmination of group work completed during the second half of the semester. The presentation highlights students' knowledge/understanding of intercultural reasoning and competence, in addition to their ability to work collaboratively toward the shared purpose of developing and delivering a presentation. Together, students craft a presentation guided by the following prompts:

1)   Are racial/ethnic or other social identity stereotypes challenged or reinforced? If so, how?
2)   What, if any, dominant narratives are reinforced? Which narratives are elided? How?
3)   What could be the consequences of such reporting?

The final project grade is determined by the project rubric (emphasizing intercultural reasoning and competence as demonstrated by responding to the questions above), peer evaluations (collaboration skills, teamwork, and value systems), and attendance during interactive presentation sessions.

The presentation is an extension of the media analysis project described above (for assessment of Information and Digital Literacy). The presentation could be organized conceptually or chronologically, as long as it integrates all required media analysis elements and flows logically. The presentation must include a clearly articulated argument and primary evidence from news sources. Relevant scholarship must be properly cited, and findings/conclusions must

be highlighted. The presentation should be analytical as required by the media analysis project. Students should do the following: Interrogate issues; highlight debates; propose a pathway forward that addresses social justice and solutions across social and cultural relationships.

Information & Digital Literacy. *Authority and Value of Information; Digital Literacy; Information Structure; and Research as Inquiry*
For skill development and assessment, interspersed among the discussions that serve as practice for the media analysis project, students complete several "In the News" assignments, which emphasize all Component Skills except information structures. The aim of these assignments is for students to make connections among the topics of this multidisciplinary course and relevant current events happening in- and/or outside the U.S.
Course instructors worked with Miller Library to develop an Ethnic Studies/Media Analysis library guide. It gives students guidance in locating (digital literacy) and assessing the authority and value of online media sources (authority and value of information). Once students have verified and demonstrated that a news source is reputable, students write and submit an analytical reflection of 2-3 paragraphs or, when requested, post a Flip video in Canvas (digital literacy) explaining how the article pertains to the topics assigned for the given week. Students provide a link to or attachment of the article in the submission.
Next, students provide constructive comments on at least one post by 2 peers, to which the original author responds. Finally, the instructors offer feedback, which serves as a basis, in an iterative process, for improved and refined analysis in occasional rewrites and subsequent "In the News" assignments (research as inquiry).
All told, these assignments sharpen students' technical and cognitive abilities in digital environments, including the Flip video discussion platform, the course learning management system, and media and library databases.

D. Assessment (Must be on file with HED by August 1, 2019)

Link to Institution's General Education Assessment Plan	https://academic.wnmu.edu/wp-content/uploads/sites/82/2019/07/WNMU-General-Education-Assessment-Plan-2019-2020.pdf

WNMU
Assessment for **ALAS 1840** GE application
(Currently a workshop) (Unique common course # application coming ASAP)
ALAS 1840: Ethics Studies
Analysis of Media Representations

Essential skill: Critical thinking.

Over the first half of the semester, we have explored several major topics/phenomena related to race and ethnic relations, including racial identity, immigration, challenges to Ethnic Studies curricula, and reproductive governance, all from various perspectives (e.g., political, sociological, and literary). Moreover, we've covered key concepts and theories such as race/ethnicity, intersectionality, controlling images, color blindness, critical race theory, and identity formation/construction. One of the principal themes of the course has been the social construction of identity groups and relations among identity groups.

One (set of) institution(s) whose influence we have largely not examined is the media. Media represent significant social, economic, and political organizations that influence cultural norms and, by extension, relations and political outcomes. (Please review Mastro [2015], Why the media's role in issues of race and ethnicity should be in the spotlight, located in the module.) This essay provides an opportunity to analyze how media outlets report about race/ethnicity-related issues in recent years in connection with one of the major topics of the course.

First, select one of the topics we've covered. Instructors will ensure that all topics are covered by several students in the course. Next, search for 2-3 relevant articles published in the last 2 years in 2 different credible print news outlets in New Mexico or your home state. Please use the library guide whose link is enclosed below to evaluate the credibility of your source; defend each selection in a footnote.

In an essay of approximately 2-3 pages (not a strict page limit as we're more concerned about quality than quantity), please address the following to demonstrate your understanding and the possible implication of race and ethnicity and the media in the United States:

1. Are racial/ethnic or other social identity stereotypes challenged or reinforced? Explain.
2. What, if any, dominant narratives are reinforced? Which narratives are elided? Explain.
3. What are the possible consequences of such reporting?

Essay format is mandatory, including an introduction with a thesis statement, a body organized into coherent paragraphs addressing the thesis, and a strong summative conclusion. In order to formulate and support your central argument(s), cite 2-4 scholarly sources and 4-6 media sources. Sources assigned as required course readings are fair game. Primary sources are also acceptable (e.g., U.S. Constitution). APA citation format is expected. Please double-space and paginate. Use an easily readable font, and submit as a Word document. A drop box in Canvas is available for essay submissions.

WNMU

Assessment for **ALAS 1840** GE application

(Currently a workshop) (Unique common course # application coming ASAP)

Note: All submissions are subject to analysis by software designed to detect plagiarism and AI content. Please refer to the syllabus for course policies regarding academic integrity. If you have any questions, please don't hesitate to reach out.

Reliable Sources library guide: https://wnmu.libguides.com/news

NEW MEXICO HIGHER EDUCATION DEPARTMENT

Fostering Student Success from Cradle to Career

Michelle Lujan Grisham, *Governor*
Stephanie M. Rodriguez, *Cabinet Secretary*
Patricia Trujillo, *Deputy Secretary*

New Mexico General Education Curriculum Course Certification Form

Application Number   2965

Institution and Course Information

Name of Institution	SJC
Chief Academic Officer Name	Dr. Michael Ottinger
Chief Academic Officer Email	ottingerm@sanjuancollege.edu
Registrar Name	Karen Doughty
Registrar Email	doughtyk@sanjuancollege.edu
Department	Registrar
Prefix	MATH
Number	1110
Suffix	
Title	Math for Teachers I
Number of Credits	3

Was this course previously part of the general education curriculum?

☐ Yes   ☒ No

Is this application for your system (ENMU, NMSU, & UNM)?

☒ Yes   ☐ No

Co-Requisite Course Information

Prefix	n/a
Number	n/a
Suffix	n/a
Title	n/a

New Mexico Common Course information

Prefix	MATH
Number	1110
Suffix	
Title	Math for Teachers I

A. Content Area and Essential Skills

To which content area should this course be added? *Indicate "Other" if the course is not associated with one of the six NM General Education content areas.*

☐ Communications   ☒ Mathematics   ☐ Science   ☐ Social & Behavioral Sciences

☐ Humanities   ☐ Creative & Fine Arts   ☐ Flex

Which essential skills will be addressed?

         ☒ Communication   ☒ Critical Thinking   ☐ Information & Digital Literacy

            ☒ Quantitative Reasoning   ☐ Personal & Social Responsibility

B. Learning Outcomes

List all common course student learning outcomes for the course.

Investigates the representation of rational numbers and rational number arithmetic, including base ten and decimal numbers, fractions, and arithmetic operations on these sets. Connections to basic geometric concepts are included. Explanation and problem solving is emphasized throughout.

1. Unpack arithmetic.

Component 1: Explain procedures for doing addition, subtraction, and multiplication with whole numbers, integers, and fractions.

Component 2: Do addition, subtraction, and multiplication of multi-digit numbers in several different ways.

Component 3: Analyze student work, assess the validity of arguments, and identify mathematical misconceptions in mistakes.

Component 4: Use the decomposition of whole numbers to find factors, multiples, and prime numbers.

Component 5: Use the relationships between operations, to solve simple algebraic equations.

2. Apply mathematical concepts.

Component 1: Recognize the difference between multiplicative and additive situations.

Component 2: Solve problems involving fractions.

3. Represent mathematical concepts.

Component 1: Use tactile representations, including base blocks and integer chips to represent numbers and operations.

Component 2: Use visual representations, including discrete pictures, number lines, and rectangles, to represent operations.

Component 3: Use tactile and visual representations to explain how estimation and rounding work.

Component 4: Use concrete applications to represent operations.

4. Communicate mathematical concepts.

Component 1: Describe the equivalence between different representations of numbers and operations.

Component 2: Create justifications for properties and procedures in arithmetic.

Component 3: Use correct terminology and notation.

General Education Outcomes for Communication, Quantitative Reasoning and Critical Thinking

List all institution-specific Student Learning Outcomes that are common to all course sections offered at the institutions regardless of instructor.

C. Narrative

In the boxes provided, write a short (~300 words) narrative explaining how the course weaves the essential skills associated with the content area throughout the course. Explain what students are going to do to develop the essential skills and how you will assess their learning. The narrative should be written with a general audience in mind and avoid discipline specific jargon as much as possible.

Be sure to address the component skills listed next to each essential skill. The number of component skills that must be addressed by your narrative is listed.

Communication. *Genre and Medium Awareness, Application and Versatility; Strategies for Understanding and Evaluating Messages; and Evaluation and Production of Arguments.*
Math for teachers involves a high degree of communication, as students are learning not only math content, but also how to teach math to elementary students. In terms of genre awareness, the math for teachers students must learn the conventions and expectations of student-facing, teacher-facing, and family-facing materials. For instance, when creating or selecting a graphic organizer, a sentence frame or an anchor chart for a kindergarten class, its important to remember that not all students at this age are reading, but also, that reading is a skill we want them to learn. Pairing visuals with key words, and helping students learn simple grammatical structures through sentence frames are important even in a math lesson. On the other hand, writing a lesson plan is a teacher-facing activity. There are norms and expectations for what should be included in the lesson plan, the level of detail required, supporting documents expected, and language that new teachers must learn.

When understanding and evaluating messages, one critical area for new teachers is unpacking what the curriculum intends. For example, what is the meaning of a given standard, why is that concept important and how does it connect with other math concepts, what types of problems show mastery of the standard and what types of activities support students to develop proficiency. In the course, we also examine how to interpret what students are showing us or telling us. We engage in error analysis as well as common misconceptions and how to address them.

For evaluating and producing arguments, students design their own lessons, applying the skills we have studied, such as problem-based learning and equitable math teaching strategies. They need to draw on the resources available to them and discern what will be the most effective for a selected standard and group of students. |

Critical Thinking. *Problem Setting; Evidence Acquisition; Evidence Evaluation; and Reasoning/Conclusion*
Critical thinking is demonstrated and assessed most clearly in our final lesson plan project. This lesson plan project is focused on the concept of teaching math equitably, and also requires students to synthesize and apply their learning from throughout the semester.

To start off, students select a specific group of students that they want to focus on supporting through their lesson. They may choose to support multi-lingual learners, students with a specific disability, or to include a particular cultural perspective. In this way, students are setting their own problem of how to effectively support the specific group of students they chose in achieving proficiency in a given math standard.

Next, students must research different strategies and resources for supporting their focus group. Although we cover strategies to teach math equitably in broad strokes through the course, students must research additional strategies that are specific to the group of students they chose, thus engaging in evidence acquisition. |

For evidence evaluation, students must determine which strategies or resources are most likely to work for their specific students, considering our local context as well as whether the strategies are research based. In the case of language and culture, there are fewer resources available that are specific to the Four Corners student population, so students must be very discerning in their selection of relevant strategies.

Students then synthesize what they have learned to design a lesson that will support their chosen group of students in becoming proficient in a given math standard. The lesson must be contextual and problem-based, and they must have a strategy for assessing its effectiveness.

Quantitative Reasoning. *Communication/Representation of Quantitative Information; Analysis of Quantitative Arguments; and Application of Quantitative Models*

Communicating and representing quantitative information in different ways is something we practice frequently in all math content areas, because students not only need to be able to do it themselves, they need to be able to teach their students to do it. One example is what's called a translation task, where students represent a problem in four ways – with a real world context, with a visual or physical manipulative, with an equation, and with an explanation. We practice this with both college level math, so students can feel how hard it is when the topic is challenging to them, and also with the elementary content, so they can see what it looks like for simpler math.

In terms of analyzing quantitative arguments, each unit of study has at least one open-ended, problem-solving task that takes several weeks to complete as a class. Students are prompted to discuss their initial and intermediate strategies and approaches, and to give feedback to each other on what seems promising, and where they see a mistake.
Once students have solved the problem, they must explain how they arrived at the answer and how they know it is correct. Students then analyze each other's arguments for where something is unclear, unsupported by evidence or possibly mistaken.

Finally, the application of quantitative models is the core focus of the class. Students are learning how to teach math to elementary students through Problem-Based tasks and contextual problems. In order to be effective, they must also experience this for themselves. The entire course is designed to have frequent opportunities for students to practice both solving and modeling contextual problems, as well as designing their own.

Personal & Social Responsibility. *Intercultural reasoning and intercultural competence; Sustainability and the natural and human worlds; Ethical reasoning; Collaboration skills, teamwork and value systems; and Civic discourse, civic knowledge and engagement – local and global*

Information & Digital Literacy. *Authority and Value of Information; Digital Literacy; Information Structure; and Research as Inquiry*

D. Assessment (Must be on file with HED by August 1, 2019)

Link to Institution's General Education Assessment Plan	https://www.sanjuancollege.edu/media/sanjuancollegeedu-2023/documents/homepage/about/accreditation/SJC_GenEd_Assessment_CourseList-07.11.23.pdf

Math 1110 Assessment Example

Final Lesson Plan Instructions and Rubric

GOAL:

To extend your lesson planning skills by applying equity principles and assessment to a Three Phase Lesson plan.

Collaboration:

You will be allowed to choose a group of 3 or 4 students. You must work together to plan your lesson, create your resources, and record a short video demonstrating one section of your plan.

Note:

This lesson task builds on the first lesson planning task from the semester. You are expected to continue to use best practices such as selecting a high-quality problem and following the Three Phase Format. In addition, **you will add in the principles of assessment and teaching equitably.** As such, some of the directions below will be familiar. **The new directions have been bolded so you can see them clearly.**

Assignment Details:

- Choose one math standard from the grade level of your choice (K - 6). You may use Common Core State Standards, or New Mexico standards

- Design / select a high quality problem to help students explore this standard. (Refer to Teaching Through Problem Solving Ch 3; and our Mathematical Mindset resources.)

- Plan a lesson using the Three Phase Lesson format (Ch 4).

- **Consider how you will know what students have learned during your lesson. What type(s) of assessment are appropriate/helpful for your planned lesson? (Ch 5)**

- **Choose *one aspect* of teaching math equitably to focus on when designing your lesson (supporting students with disabilities; OR supporting multilingual learners; OR culturally responsive pedagogy). Be sure to explain how your lesson addresses this aspect of teaching equitably in your lesson plan. (Ch 6 and additional resources from the module.)**

Complete and submit the following:

- Fill in the full lesson plan template appropriately.
    - Be sure to give detailed bullet point instructions for the Before, During and After phases of the lesson. Imagine you are writing for a co-teacher who will need to understand exactly what is happening in the lesson.
    - List the resources carefully, **including any materials related to assessment or equity.**
    - **Clearly state how your lesson addresses your chosen aspect of teaching equitably (supporting students with disabilities; OR supporting multilingual learners; OR culturally responsive pedagogy).**
    - **Explain how you will assess student learning as part of this lesson.**
- When appropriate, include the necessary resources in your submission, **especially any assessment or equity resources.** (In other words, if you are using ten frames, you can just list this material. But if you are using a worksheet or a graphic organizer, you should include this in the submission.)
- Choose one section of the lesson to model in a short video [10 - 12 minutes].
- **Submit your lesson plan, resources, and video model by _____.**

Final Lesson Plan GRADING RUBRIC

Category	Needs improvement	Satisfactory	Outstanding	Points	Gen Ed Essential Skills
Problem selection and/or design.	The problem is not aligned to the standard and/or will not allow for equity principles to be applied.	The problem is aligned to the standard and allows for equity principles to be applied.	The problem is clearly aligned to the standard and makes it easy to **apply equity principles**.	/15	Quantitative Reasoning Critical Thinking
Lesson plan.	The lesson plan does not follow the Three Phase Format.	The lesson plan is filled out completely and follows the Three Phase Format.	The lesson plan is filled out completely and clearly, follows the Three Phase Format, **and a special education or MLL teacher could review and adjust the lesson as needed.**	/15	Communication Critical Thinking
Assessment.	The assessment selected is not appropriate for the task and/or the standard.	The assessment selected is appropriate for the standard and task, but may not allow the teacher(s) to assess all students equitably.	**An appropriate assessment has been selected and/or designed for this standard and task. The assessment will clearly allow the teacher(s) to see whether students are making progress in this standard.**	/15	Quantitative Reasoning Communication Critical Thinking

Equity.	No attempt was made to apply equity principles to the lesson.	An attempt has been made to apply one aspect of teaching equitably to the lesson plan.	**A specific aspect of teaching equitably has been applied and clearly explained.**	/15 Communication Critical Thinking
Resources	The resources needed for the lesson have not been thought out fully. Some resources are missing and/or of poor quality.	The necessary resources have been listed and are included in the submission. Some resources need to be improved before using them with students.	The resources required for the lesson have been listed clearly and will support **all** the students in completing the task. **Any equity or assessment materials specific to the lesson have been included and are of high-quality.**	/15 Quantitative Reasoning Communication
Model Lesson Video.	The video lesson is not the correct length and/or is very unclear.	The video lesson is the appropriate length (10 - 12 min).	The video lesson is the appropriate length (10 - 12 min) and clearly demonstrates **an aspect of either equity or assessment**.	/15 Quantitative Reasoning Communication
Team work	The members of the team are not able to work together to successfully complete their project.	The members of the team work together to successfully complete their lesson plan project.	The members of the team work together respectfully and share the responsibilities of lesson planning, resource creation, and teaching. Conflicts and	/10 Communication

			disagreements are resolved professionally.		
			TOTAL	/100	

Math 1110 Assessment Example

Final Lesson Plan Instructions and Rubric

GOAL:

To extend your lesson planning skills by applying equity principles and assessment to a Three Phase Lesson plan.

Collaboration:

You will be allowed to choose a group of 3 or 4 students. You must work together to plan your lesson, create your resources, and record a short video demonstrating one section of your plan.

Note:

This lesson task builds on the first lesson planning task from the semester. You are expected to continue to use best practices such as selecting a high-quality problem and following the Three Phase Format. In addition, **you will add in the principles of assessment and teaching equitably.** As such, some of the directions below will be familiar. **The new directions have been bolded so you can see them clearly.**

Assignment Details:

- Choose one math standard from the grade level of your choice (K - 6). You may use Common Core State Standards, or New Mexico standards

- Design / select a high quality problem to help students explore this standard. (Refer to Teaching Through Problem Solving Ch 3; and our Mathematical Mindset resources.)

- Plan a lesson using the Three Phase Lesson format (Ch 4).

- **Consider how you will know what students have learned during your lesson. What type(s) of assessment are appropriate/helpful for your planned lesson? (Ch 5)**

- **Choose *one aspect* of teaching math equitably to focus on when designing your lesson (supporting students with disabilities; OR supporting multilingual learners; OR culturally responsive pedagogy). Be sure to explain how your lesson addresses this aspect of teaching equitably in your lesson plan. (Ch 6 and additional resources from the module.)**

Complete and submit the following:

- Fill in the full lesson plan template appropriately.
    - Be sure to give detailed bullet point instructions for the Before, During and After phases of the lesson. Imagine you are writing for a co-teacher who will need to understand exactly what is happening in the lesson.
    - List the resources carefully, **including any materials related to assessment or equity.**
    - **Clearly state how your lesson addresses your chosen aspect of teaching equitably (supporting students with disabilities; OR supporting multilingual learners; OR culturally responsive pedagogy).**
    - **Explain how you will assess student learning as part of this lesson.**
- When appropriate, include the necessary resources in your submission, **especially any assessment or equity resources.** (In other words, if you are using ten frames, you can just list this material. But if you are using a worksheet or a graphic organizer, you should include this in the submission.)
- Choose one section of the lesson to model in a short video [10 - 12 minutes].
- **Submit your lesson plan, resources, and video model by _____.**

Final Lesson Plan GRADING RUBRIC

Category	Needs improvement	Satisfactory	Outstanding	Points	Gen Ed Essential Skills
Problem selection and/or design.	The problem is not aligned to the standard and/or will not allow for equity principles to be applied.	The problem is aligned to the standard and allows for equity principles to be applied.	The problem is clearly aligned to the standard and makes it easy to **apply equity principles**.	/15	Quantitative Reasoning Critical Thinking
Lesson plan.	The lesson plan does not follow the Three Phase Format.	The lesson plan is filled out completely and follows the Three Phase Format.	The lesson plan is filled out completely and clearly, follows the Three Phase Format, **and a special education or MLL teacher could review and adjust the lesson as needed.**	/15	Communication Critical Thinking
Assessment.	The assessment selected is not appropriate for the task and/or the standard.	The assessment selected is appropriate for the standard and task, but may not allow the teacher(s) to assess all students equitably.	**An appropriate assessment has been selected and/or designed for this standard and task. The assessment will clearly allow the teacher(s) to see whether students are making progress in this standard.**	/15	Quantitative Reasoning Communication Critical Thinking

Equity.	No attempt was made to apply equity principles to the lesson.	An attempt has been made to apply one aspect of teaching equitably to the lesson plan.	**A specific aspect of teaching equitably has been applied and clearly explained.**	/15	Communication Critical Thinking
Resources	The resources needed for the lesson have not been thought out fully. Some resources are missing and/or of poor quality.	The necessary resources have been listed and are included in the submission. Some resources need to be improved before using them with students.	The resources required for the lesson have been listed clearly and will support **all** the students in completing the task. **Any equity or assessment materials specific to the lesson have been included and are of high-quality.**	/15	Quantitative Reasoning Communication
Model Lesson Video.	The video lesson is not the correct length and/or is very unclear.	The video lesson is the appropriate length (10 - 12 min).	The video lesson is the appropriate length (10 - 12 min) and clearly demonstrates **an aspect of either equity or assessment**.	/15	Quantitative Reasoning Communication
Team work	The members of the team are not able to work together to successfully complete their project.	The members of the team work together to successfully complete their lesson plan project.	The members of the team work together respectfully and share the responsibilities of lesson planning, resource creation, and teaching. Conflicts and	/10	Communication

			disagreements are resolved professionally.		
			TOTAL	/100	

San Juan College Curriculum Committee Course Proposal
Supporting Information Worksheet
AY 2025-2026

Please provide the following information in support of a Curriculog Course Change or New Course Proposal. Incomplete submissions may be returned for further processing and may delay review by the Curriculum Committee. Contact a member of the Curriculum Committee or your Dean with questions. When entering information into the fields they will scroll to accommodate more text if there is insufficient space for the information.

Part 1: Course Master Syllabus Information (to be voted on by the committee)

Course Title:

Math for Teachers I

Course Number:

Math 1110

☐ **Select if this is a NM common Course numbered course.**

> NOTE: For all common course number courses the title, description, and course outcomes must match the State information for the course. SJC can add course outcomes but added outcomes cannot exceed 20% the total course outcomes.
> See https://hed.state.nm.us/uploads/documents/PSA_Course_Catalog_V17.pdf for the State Common Course Number Catalog.

Credit Hours:

3

Proposed catalog course description (including any co-requisites and pre-requisites):

Investigates the representation of rational numbers and rational number arithmetic, including base ten and decimal numbers, fractions, and arithmetic operations on these sets. Connections to basic geometric concepts are included. Explanation and problem solving is emphasized throughout.

☐ **Select if this course is proposed for NM General Education**
If selected, in which content area (Communication, Creative and Fine Arts, Humanities, Mathematics, Science, Social & Behavioral Sciences)?

Mathematics

After SJC approval, the course will also need to be submitted for NM HED approval.

Course Learning Outcomes:

Investigates the representation of rational numbers and rational number arithmetic, including base ten and decimal numbers, fractions, and arithmetic operations on these sets. Connections to basic geometric concepts are included. Explanation and problem solving is emphasized throughout.

1. Unpack arithmetic.
   Component 1: Explain procedures for doing addition, subtraction, and multiplication with whole numbers, integers, and fractions.
   Component 2: Do addition, subtraction, and multiplication of multi-digit numbers in several different ways.
   Component 3: Analyze student work, assess the validity of arguments, and identify mathematical misconceptions in mistakes.
   Component 4: Use the decomposition of whole numbers to find factors, multiples, and prime numbers.
   Component 5: Use the relationships between operations, to solve simple algebraic equations.
2. Apply mathematical concepts.
   Component 1: Recognize the difference between multiplicative and additive situations.
   Component 2: Solve problems involving fractions.
3. Represent mathematical concepts.
   Component 1: Use tactile representations, including base blocks and integer chips to represent numbers and operations.
   Component 2: Use visual representations, including discrete pictures, number lines, and rectangles, to represent operations.
   Component 3: Use tactile and visual representations to explain how estimation and rounding work.
   Component 4: Use concrete applications to represent operations.
4. Communicate mathematical concepts.
   Component 1: Describe the equivalence between different representations of numbers and operations.
   Component 2: Create justifications for properties and procedures in arithmetic.
   Component 3: Use correct terminology and notation.

General Education Outcomes for Communication, Quantitative Reasoning and Critical Thinking

You should be able to map your Course Learning Outcomes to Program Learning Outcomes. Similarly, be sure your Grading and Activities are connected to one or more learning outcomes.

Use the format: By the end of this course, students should be able to …

Use active verbs to describe what students should be able to do and make sure the outcomes are measurable.

Part 2: Supporting Information

The information provided here is for reference and clarifying purposes and allows the committee to have a more thorough understanding of the course during the peer review process. This is a sampling of the information that will be entered into Simple Syllabus at the section level by the section instructor. Curriculum Committee understands that this might not be the final version of this information and that final decisions on the content in this section may need to take place at the course and department levels after the course is approved by the committee.

Texts and/or Materials:

Elementary and Middle School Mathematics: Teaching Developmentally
9780134802084
John A. Van de Walle, Karen S. Karp, Jennifer M Bay-Williams Pearson
2022
11th Edition
We have inclusive access for the eBook.

Required Technology and Software:

Canvas
Chrome, Safari, or Firefox

In this section, specify which texts/materials are required and/or recommended. Also list any additional technology/software requirements that the course may need. Curriculum Committee understands that final selection of materials may vary by instructor. These are listed to give Curriculum Committee a sense for the relevance of the materials.

Proposed course activities:

Students will do the following activities:
- Read assigned chapters before class as requested.
- Participate fully in class activities and collaborative assignments.
- Complete assigned homework tasks.
- Complete assigned problem solving and other mathematical tasks.
- Complete four major assignments - two lesson plans, one assessment design task, and one final reflection.

In this section provide a narrative and examples of activities on how the course may address the learning outcomes listed on the Master Syllabus above. The examples and narrative do not have to be the exact activities that will be present in the final course. They are intended to give Curriculum Committee a better sense of the course. Please be thorough, but also concise in the narrative.

Grading:

Final grades are weighted as follows:
50% Formative Assessments (Homework, Readings, Participation, Problem Solving, Classwork, Discussions)
50% Summative Assessments (Lesson Plan Projects, Assessment Design, Final Reflection)

In this section, explain how grades are calculated, including approximate weights for course activities listed above.

![New Mexico Higher Education Department logo]

**NEW MEXICO
HIGHER EDUCATION
DEPARTMENT**
Fostering Student Success from Cradle to Career

Michelle Lujan Grisham, *Governor*
Stephanie M. Rodriguez, *Cabinet Secretary*
Patricia Trujillo, *Deputy Secretary*

New Mexico General Education Curriculum Course Certification Form

Application Number | 2966 |

Institution and Course Information

Name of Institution	SJC
Chief Academic Officer Name	Dr. Michael Ottinger
Chief Academic Officer Email	ottingerm@sanjuancollege.edu
Registrar Name	Karen Doughty
Registrar Email	doughtyk@sanjuancollege.edu
Department	Registrar
Prefix	SOWK
Number	2110
Suffix	
Title	Intro to Human Services & Sociology
Number of Credits	3

Was this course previously part of the general education curriculum?

☐ Yes   ☒ No

Is this application for your system (ENMU, NMSU, & UNM)?

☒ Yes   ☐ No

Co-Requisite Course Information

Prefix	n/a
Number	n/a
Suffix	n/a
Title	n/a

New Mexico Common Course information

Prefix	SOWK
Number	2110
Suffix	
Title	Intro to Human Services & Sociology

A. Content Area and Essential Skills

To which content area should this course be added? *Indicate "Other" if the course is not associated with one of the six NM General Education content areas.*

☐ Communications   ☐ Mathematics   ☐ Science   ☒ Social & Behavioral Sciences

☐ Humanities   ☐ Creative & Fine Arts   ☐ Flex

Which essential skills will be addressed?

☒ Communication   ☒ Critical Thinking   ☐ Information & Digital Literacy
☐ Quantitative Reasoning   ☒ Personal & Social Responsibility

B. Learning Outcomes

List all common course student learning outcomes for the course.

1. Explain the interactions of social institutions, cultural factors, dimensions of identity, and environment with the human development and behavior of individuals.
2. Demonstrate knowledge of the social work profession's focus on addressing contemporary social issues in the United States.
3. Describe the mission and services provided by social service agencies at the regional, national, and global levels.
4. Demonstrate a basic understanding of the social work profession, its history, career opportunities, and contemporary issues facing social workers in the United States today.
5. Recognize how students' knowledge, skills, and attitudes impact their competence as helping professionals.

List all institution-specific Student Learning Outcomes that are common to all course sections offered at the institutions regardless of instructor.

C. Narrative

In the boxes provided, write a short (~300 words) narrative explaining how the course weaves the essential skills associated with the content area throughout the course. Explain what students are going to do to develop the essential skills and how you will assess their learning. The narrative should be written with a general audience in mind and avoid discipline specific jargon as much as possible.

Be sure to address the component skills listed next to each essential skill. The number of component skills that must be addressed by your narrative is listed.

Communication. *Genre and Medium Awareness, Application and Versatility; Strategies for Understanding and Evaluating Messages; and Evaluation and Production of Arguments.*

Students will develop and apply professional communication through various class activities and assignments relevant to human services settings. Methods of communication will include independent research essays, discussion forums, small and large group activities, and oral presentations.

Students will develop communication skills by articulating their knowledge of human services professions after engaging with community helping professionals. Students will be assessed by preparing thoughtful questions related to the populations the professionals serve. After gathering responses, students will document their findings and communicate their insights through written essays posted in the Canvas learning management system discussion forums. Students will then evaluate peers' posts and provide meaningful feedback.

Students will explore and evaluate different human services models, including the Medical Model, Public Health Model, and Human Services Model. They will be assessed by applying the principles of these models to case study vignettes and recording their analysis. In small groups, students will orally present their findings to the class, focusing

on how the principles of each model relate to the case study vignettes. To conclude this process, students will use Venn diagrams to compare and contrast the models and assess which best supports the needs of the clients in the vignettes.

Students will develop research and argumentation skills by working in small groups to investigate a social issue in the community. Each group will research the history, current statistics (specifically for New Mexico), and the human service agencies addressing the issue. Students will be assessed by presenting their findings through a PowerPoint project, which will highlight key facts and conclusions drawn from their research. After all groups present, they will engage in a debate to determine which social problem is the most pressing in the community and deserves immediate attention.

Critical Thinking. *Problem Setting; Evidence Acquisition; Evidence Evaluation; and Reasoning/Conclusion*

Students will develop and apply critical thinking skills through a variety of activities and assignments relevant to human services settings. Key assignments include case studies, group discussions (both small and large), research, and written and oral presentations.

One core skill the students will develop is evidence evaluation. They will evaluate various community agencies that address different social issues, comparing the services they offer, the qualifications of their staff, and the affordability of their services. Students will be assessed by documenting their findings and presenting their findings to the class, helping students determine which services to recommend for fictitious case study clients.

Students will also hone their ability to identify and define problems in living by analyzing case studies involving individuals facing various life challenges. They will consider the issues their clients are struggling with and identify which community services can best support the clients in becoming self-sufficient, thereby addressing the identified problems. Students will be assessed by presenting their recommendations for each case study to the class.

 Additionally, students will develop skills in evidence acquisition by researching a human services profession of their choice. They will explore the educational requirements and professional ethics associated with that profession and apply this knowledge to ethical dilemmas presented in case study vignettes. Students will be assessed by recording their decisions and presenting their resolutions to the class, engaging in group discussions to explore different perspectives.

Finally, students will develop their reasoning and critical thinking skills by identifying gaps in community services. In small groups, they will propose potential solutions, such as increasing the number of social workers, creating new treatment facilities, or implementing prevention programs to address specific social issues. Students will be assessed by recording their conclusions and presenting them to the class.

Quantitative Reasoning. *Communication/Representation of Quantitative Information; Analysis of Quantitative Arguments; and Application of Quantitative Models*

Personal & Social Responsibility. *Intercultural reasoning and intercultural competence; Sustainability and the natural and human worlds; Ethical reasoning; Collaboration skills, teamwork and value systems; and Civic discourse, civic knowledge and engagement – local and global*
Students will develop and apply personal and social responsibility skills through various class activities and assignments focused on human services issues. These assignments include case studies, written and oral group discussions and presentations, and service-learning projects.

Through service-learning experiences, students will gain hands-on knowledge of personal and social responsibility by working alongside helping professionals. They will explore how agencies collaborate to support clients in need and demonstrate civic engagement. Students will be assessed by creating a PowerPoint presentation that showcases the services offered by their service-learning site, which they will present to the class.

Students will also learn about the core values, characteristics, and ethical responsibilities of effective helping professionals through assigned readings. They will reflect on these qualities in the context of their service-learning experiences and will be assessed by participating in Canvas discussion forums, where they can analyze and compare how these values and responsibilities manifest in different helping professions.

In small groups, students will engage in ethical discussions, comparing and contrasting ethical issues in human services. They will be assessed using case study vignettes wherein they will identify ethical dilemmas commonly faced by professionals in the field. Groups will then present their findings through a poster project, highlighting the ethical responsibilities that guide practice in various helping professions.

Throughout the course, students will build collaboration skills by working together on class projects. After completing their group assignments, students will be assessed through written reflections discussing their personal contributions and how the group leveraged individual strengths to meet project objectives. Following the group presentations, students will evaluate how equitably responsibilities were shared within their teams. |

Information & Digital Literacy. *Authority and Value of Information; Digital Literacy; Information Structure; and Research as Inquiry*

D. Assessment (Must be on file with HED by August 1, 2019)

Link to Institution's General Education Assessment Plan	https://www.sanjuancollege.edu/media/sanjuancollegeedu-2023/documents/homepage/about/accreditation/SJC_GenEd_Assessment_CourseList-07.11.23.pdf

SOWK 2110

Final PowerPoint Presentation: Exploring Human Services Professions

Purpose: The purpose of this project is to explore the roles, responsibilities, and impact of professionals within the human services field by examining a specific service-learning experience. This project aims to provide insight into the agency's mission, services, and the population it serves while highlighting the professional skills, values, and characteristics required for success in this field. Through personal observations, interactions, and research, this paper will assess the challenges and rewards of working in human services and reflect on the alignment of these experiences with the author's professional aspirations.

Assignment Details

1. **Engaging Presentation (5 points)**

   o   Include relevant and engaging images to attract viewers.

2. **Cover Slide (5 points)**

   o   Include:

      ▪   Your name.

      ▪   Your professor's name and credentials (choose one):

         ▪   Dawn Myers, Professor of Human Services and Sociology.

         ▪   Nichole Nelson-Garcia, Assistant Professor of Human Services and Sociology.

         ▪   Kitrina Tamminga, Instructor of Human Services/Sociology.

      ▪   Course title: *SOWK 2110*.

      ▪   Institution: *San Juan College*.

      ▪   Semester: *FA24*.

3. **Service-Learning Agency Introduction (5 points)**

   o   Provide:

      ▪   Agency name, mission, services, and contact details (address, phone, website).

      ▪   Population served.

      ▪   Professional worked with and their credentials

      ▪   Motivation for choosing the site

         ▪   Explain your reasons for selecting the service-learning site.

4. **Overview of Observations and Experiences (15 points)**

   o Describe:

     ▪ Employees and population(s) encountered.

     ▪ At least 3 examples of what you observed and learned.

     ▪ Questions asked of professionals at the site.

5. **Helper Characteristics (10 points)**

   o Define and cite 2 of the 5 characteristics from Chapter 2 (*Self-awareness, Ability to Communicate, Empathy, Responsibility/Commitment, Flexibility*).

   o Provide at least 1 example for each characteristic observed at the site.

6. **Helper Values (10 points)**

   o Define and cite 2 of the 5 values from Chapter 2 (*Acceptance, Tolerance, Individuality, Self-determination, Confidentiality*).

   o Provide at least 1 example for each value observed at the site.

7. **Research Component (15 points)**

   o Use at least 3 scholarly sources (e.g., academic articles, journals, books) to research the profession or population served by the agency.

   o Do not use Wikipedia or similar sites. Use the San Juan College Library databases.

   o Provide a thorough overview of your findings with in-text citations.

8. **Reflection and Conclusion (15 points)**

   o Reflect on your research and service-learning experience.

   o Discuss:

     ▪ Whether you could work in the same capacity as the professional.

     ▪ Explain why or why not.

   o Recommend (or not) the site to future students, explaining your reasoning.

9. **Grammar and Style (5 points)**

   o Use college-level grammar and writing. Proofread thoroughly. Seek help if needed.

10. **Works Cited (5 points)**

    o Include bibliographic citations for your 3 academic sources and the textbook.

    o Title the last slide *Works Cited* and list citations alphabetically.

11. **Submission and Peer Feedback (15 points)**

   o   Submit your presentation by the listed due date and time.

   o   Reply to 3 colleagues' presentations by the listed due date and time discussing at least 3 topics you learned.

   o   Honors service-learning students will present their project at the SJC Student Showcase

Rubric for Final PowerPoint Presentation: Human Services Professions

Criteria	Excellent (Full points)	Good (Partial points)	Needs Improvement (Minimal points)	Points
Engaging Presentation	Contains many relevant, engaging images that enhance viewer interest.	Includes some images, but they are not fully engaging or relevant.	Few or no images are included, or images are irrelevant.	/5
Cover Slide	Includes all required elements (name, professor, course, institution, semester).	Missing 1-2 required elements.	Missing 3 or more required elements.	/5
Agency Introduction	Thoroughly introduces the agency with all required details.	Includes some details, but a few are missing or incomplete.	Missing most required details or lacks clarity.	/5
Motivation for Site Selection	Clearly and thoroughly explains the motivation for selecting the site.	Provides a basic explanation but lacks depth or clarity.	Explanation is unclear, vague, or missing.	/5
Observations and Examples	Provides a detailed overview with 3 clear examples of observations/learning.	Includes fewer than 3 examples or lacks detail in descriptions.	Few or no examples provided; lacks clarity or relevance.	/15
Helper Characteristics	Defines and cites 2 characteristics; provides strong examples from the site.	Defines and cites characteristics but provides weak examples.	Characteristics are unclear, uncited, or lack examples.	/10

Helper Values	Defines and cites 2 values; provides strong examples from the site.	Defines and cites values but provides weak examples.	Values are unclear, uncited, or lack examples.	/10
Research Component	Uses 3+ scholarly sources; provides a thorough overview with proper citations.	Uses fewer than 3 sources or provides a less detailed overview.	Minimal or unclear research; lacks proper citations.	**/15**
Criteria	Excellent (Full points)	Good (Partial Points)	Needs Improvement (Minimal points)	**Points**
Reflection and Conclusion	Thoughtfully reflects on the experience and explains recommendations clearly.	Reflection is basic or lacks depth; recommendations are vague.	Reflection is unclear, incomplete, or missing.	**/15**
Grammar and Style	Demonstrates excellent grammar, writing style, and proofreading.	Minor grammar or style issues are present.	Contains significant grammar or writing errors.	**/5**
Works Cited Slide	Includes all sources in proper format and alphabetical order.	Includes most sources but with minor formatting errors.	Missing sources or major formatting issues.	**/5**
Submission and Peer Feedback	Submitted on time and provided thoughtful feedback to 3 peers.	Submitted late or provided limited feedback to fewer peers.	Did not submit on time or provide feedback.	**/15**
Total Points				**/110**

SAN JUAN COLLEGE

Course Prefix:

Course Number:

Course Name:

Credit Hours:

Syllabus

Course Information

Meeting times and location: section meeting_times section location

Catalog description:

Prerequisites:

Terms offered:

Section-specific Course Description:

Course Level Objectives

Grading

Final grades are calculated based on the following...

Participation and Attendance Policy

Key Dates to Remember

Full Academic Calendar

Course Schedule

Technical Support

Technical support is available through the San Juan College Help Desk 24/7/365. The help desk can be reached at 505-566-3266 or by creating a ticket at San Juan College Help Desk.

For password reset and and Canvas support, visit the Student Technology Guide website

Accessibility/Privacy Policies for all Technology Tools Used

Student Support

At San Juan College, we are committed to supporting your academic success and overall well-being. We recognize that college life can be challenging and stressful, impacting both learning and personal health. We are here to help you succeed.

Academic Support and Resources

We provide a range of academic support services to help you stay on track on your educational journey. Free resources include tutoring, computer loans, life skills workshops, and so much more. Visit the Academic Support and Resources webpage to learn more about support and resources available through Academic Advising, the Tutoring Center, the Student Resource Center (formerly Student Achievement Center) and the Testing Center.

Student Support and Resources

If you or someone you know could benefit from counseling, accessibility services, career exploration, veteran transitional assistance, or any of our other support services, visit the Student Support and Resources webpage where you'll find detailed information about various resources available to you as an SJC student.

We encourage you to take advantage of these free resources to enhance your college experience and ensure your success.

College Policies and Resources for Current Students

The Student Handbook provides information on student support, student organizations, and student conduct policies at San Juan College.

The San Juan College catalog outlines the Academic Policies students need to know

Healthy and Safe Practices for Being on Campus

We want a healthy and safe campus for students, faculty, staff, and guests.

Contagious diseases and your responsibility:

If you have COVID-19 symptoms, fever, flu or even the common cold, you should stay home. Do not come to campus if you are feeling sick. Contact your instructor about missing class (and review your instructor's policies on missed or late work). Being sick does not necessarily excuse you from completing your work on time.

Safety on campus and your responsibility:

If you are on campus and experience or witness an emergency, call 9-1-1 first and then the Department of Public Safety at 505-566-3333 (or just 3333 if calling from a campus phone).

When you are on campus, be aware of your surroundings. If you need an escort to your vehicle, call 505-566-4444 (DPS non-emergency line) or 505-215-3091 (officer on duty line).

The College will send information for campus emergencies through SJC SunsAlert, email and the webpage. Stay informed and stay safe.

Inclement Weather Information

Students will receive notification of class delays and cancellations due to inclement weather via the SJC SunsAlert and SJC student email. Face-to-face classes will not meet in person; however, students are advised to check with instructors about alternative meeting options, as some may choose to meet via zoom. Hybrid classes will meet as scheduled via zoom. For questions regarding your class delay or cancelation, please contact your instructor. If you have not already done so, Sign up for SJC SunsAlert to stay up to date on weather alerts.

Online Course Fee

Online Courses - San Juan College requires all online courses to include some form of assessment to demonstrate the mastery of course objectives. This could include exams, capstone projects, e-portfolios, presentations, final papers or other appropriate assessments. The use of a proctoring platform, plagiarism detection software or other method to ensure that assessments are completed by the enrolled student is required.

 A course fee of $5.00 is assessed for all online courses at San Juan College to cover the cost of the above services. Students who are required to take a proctored exam and choose to use a physical testing center outside the SJC Testing Center or SJC Disability Services will be responsible for the cost of using that center.

NEW MEXICO
HIGHER EDUCATION
DEPARTMENT
Fostering Student Success from Cradle to Career

Michelle Lujan Grisham, *Governor*
Stephanie M. Rodriguez, *Cabinet Secretary*
Patricia Trujillo, *Deputy Secretary*

New Mexico General Education Curriculum Course Certification Form

Application Number | 3116 |

Institution and Course Information

Name of Institution	NMSU
Chief Academic Officer Name	Lakshmi Reddi
Chief Academic Officer Email	provost@nmsu.edu
Registrar Name	Gabrielle Martinez
Registrar Email	gdmart@nmsu.edu
Department	Geography and Environmental Studies
Prefix	GEOG
Number	1115G
Suffix	
Title	Maps and GIScience
Number of Credits	3

Was this course previously part of the general education curriculum?

☐ Yes   ☒ No

Is this application for your system (ENMU, NMSU, & UNM)?

☐ Yes   ☒ No

Co-Requisite Course Information

Prefix	n/a
Number	n/a
Suffix	n/a
Title	n/a

New Mexico Common Course information

Prefix	GEOG
Number	1115G
Suffix	
Title	Maps and GIScience

A. Content Area and Essential Skills

To which content area should this course be added? *Indicate "Other" if the course is not associated with one of the six NM General Education content areas.*

☐ Communications   ☐ Mathematics   ☒ Science   ☐ Social & Behavioral Sciences

☐ Humanities   ☐ Creative & Fine Arts   ☐ Flex

Which essential skills will be addressed?

☐ Communication   ☒ Critical Thinking   ☐ Information & Digital Literacy

☒ Quantitative Reasoning   ☒ Personal & Social Responsibility

B. Learning Outcomes

List all common course student learning outcomes for the course.

1. Explain key concepts and methods of geographic information science (GIScience).
2. Articulate the significance of geographic information in decision-making processes that address human, natural, and socio-environmental challenges.
3. Evaluate the ethical, socio-environmental, and legal implications of geospatial data, technologies, and applications.
4. Evaluate spatial and aspatial data to assess human, natural, and socio-environmental problems, as well as potential solutions.
5. Communicate effectively in written and oral formats.

List all institution-specific Student Learning Outcomes that are common to all course sections offered at the institutions regardless of instructor.

n/a

C. Narrative

In the boxes provided, write a short (~300 words) narrative explaining how the course weaves the essential skills associated with the content area throughout the course. Explain what students are going to do to develop the essential skills and how you will assess their learning. The narrative should be written with a general audience in mind and avoid discipline specific jargon as much as possible.

Be sure to address the component skills listed next to each essential skill. The number of component skills that must be addressed by your narrative is listed.

Communication. *Genre and Medium Awareness, Application and Versatility; Strategies for Understanding and Evaluating Messages; and Evaluation and Production of Arguments.*

Critical Thinking. *Problem Setting; Evidence Acquisition; Evidence Evaluation; and Reasoning/Conclusion*

Students in GEOG 1115G are required to engage in critical thinking throughout the semester, as suggested by the diverse topics and assignments noted in the attached syllabus. That is, over the course of the semester, students in the class acquire, analyze, and interpret evidence about people (e.g., demographics and transportation) and the environment (e.g., climate and vegetation) and their interactions (e.g., land use) to evaluate important real-world problems in human, natural, and integrated socio-environmental systems (e.g., problem settings like site suitability mapping, weather analysis, or land degradation assessments) and develop potential solutions to these issues. This is accomplished through in-class activities like discussions and, most importantly, through hands-on lab exercises. For example, in one exercise (see attached sample exercise), students predict where and how much deforestation would

likely occur in a portion of the Brazilian Amazon rainforest if a proposed road were built. To do so, students use diverse data (e.g., population, roads, and satellite-based data on forests and deforestation), feature editing tools, and analysis methods. Students evaluate and communicate results in writing and using maps.

Quantitative Reasoning. *Communication/Representation of Quantitative Information; Analysis of Quantitative Arguments; and Application of Quantitative Models*

Students in GEOG 1115G use quantitative reasoning in all lab exercises and various in-class activities, with quantitative data collected and created in a variety of forms (e.g., tables, graphs, diagrams, maps, and satellite imagery). In the deforestation exercise, for example, students use various geospatial analytical tools to calculate the percentage of deforested land around existing roads and to make spatial predictions about likely future deforestation. In this exercise, students primarily communicate their findings through maps. In another exercise, students use mobile apps to collect field data on earthquake and fire disaster preparedness as well as emergency assets, analyze the data using descriptive statistics and charts, and communicate the results using interactive web apps with charts and maps. Finally, in yet another exercise, students identify a suitability modeling problem (e.g., where the best place might be for a new business), define the problem in terms of analysis goals and suitability criteria that can be modeled with data, prepare the data for the problem, and then create simple and weighted suitability models to identify optimal locations for the problem at hand. The exercise uses quantitative data as input; employs quantitative models to process the data; generates quantitative suitability surfaces; and requires the analysis, interpretation, and evaluation of these surfaces to make informed decisions about the chosen problem. Students' quantitative reasoning skills are demonstrated through a written lab report with maps.

Personal & Social Responsibility. *Intercultural reasoning and intercultural competence; Sustainability and the natural and human worlds; Ethical reasoning; Collaboration skills, teamwork and value systems; and Civic discourse, civic knowledge and engagement – local and global*

An overarching goal of GEOG 1115G is to teach students how to use spatial and aspatial data and methods to analyze, visualize, interpret, evaluate, and communicate real-world human, natural, and socio-environmental problems and potential sustainable solutions (ii. Sustainability and the natural and human worlds). The two exercises described above are examples of how we plan to achieve this goal. To give one more example, in another exercise, students explore flood and mudslide risk by investigating census data, filtering geologic hazard data, and creating new data by integrating existing data. The exercise results in an assessment of where which populations are most vulnerable and thus informs strategies for minimizing the loss of life and property if a flood or mudslide were to occur. GEOG 1115G also addresses "v. Civic discourse, civic knowledge and engagement – local and global". This happens as part of the disaster preparedness exercise described above and several others. For example, in one assignment, students need to identify and engage with a government agency, non-governmental organization, or business that uses geospatial data and methods. Students need to determine what the group's mission is, how it carries out that mission, how the organization contributes to civic discourse, how it promotes active community engagement, and how it may further advance civic knowledge and engagement. This exercise teaches students about importance of civic discourse in general and also gives them insights into the power of GIS&T for tackling real-world problems as well as the diverse job opportunities that exist for geospatial professionals.

Information & Digital Literacy. *Authority and Value of Information; Digital Literacy; Information Structure; and Research as Inquiry*

D. Assessment (Must be on file with HED by August 1, 2019)

Link to Institution's General Education Assessment Plan	https://gened.nmsu.edu/recertification-and-assessment/Institutional-GE-Assessment-Plan.pdf

Project, Task 1: GIScience Project Proposal

Learning Outcomes

Upon completion of this exercise, you should be able to:
1. *explain* the meaning of key proposal components, including i) problem statement; ii) research objectives, hypotheses, and/or questions; iii) methodology; iv) data and methods; and v) significance statement (intellectual merit and broader impacts); and
2. *develop* a research proposal summary; and
3. *critically evaluate* a research proposal.

Assignment Instructions and Guidance

Task 1: Upload your proposal to this discussion board by <DATE>. Start a new thread when you do so.

- Review "Kurz 2021 - Writing a Compelling Research Proposal Download Kurz 2021 - Writing a Compelling Research ProposalOpen this document with ReadSpeaker docReader" at your earliest convenience, either in time for this proposal task or for an optional revised proposal you are welcome to submit after receiving feedback from us. Kurz (2021) has some very useful tips for writing research proposals.
- Your document will not be a complete proposal; instead, it should be a concise summary of a complete proposal (3±1 pages 1.5-spaced). Do not submit less than 2 pages and do not go over 4 pages 1.5-spaced.
- Research is an ongoing process, so don't worry that what you write in your proposal will be "set in stone." This process is something that can help to focus research ideas, and we will build upon it.
- Be as comprehensive yet clear and concise as you can in your proposal, with the aim that readers from multiple disciplines (and outside of the academy) would understand your research plan after reading your proposal.
- Your proposal should include your i) problem statement; ii) research objectives, hypotheses, and/or questions; iii) methodology; iv) data and methods; and v) the significance of your proposed research. For the weighting of each these proposal components, see the rubric for the assignment.
  - The problem statement should explain what intellectual knowledge gaps and/or societal issues exist that motivate your objectives, hypotheses, and/or questions. It should help us understand why we should care about your research.
  - The research objectives, hypotheses, and/or questions should help fill the gaps and/or address the issues noted in the problem. Objectives start with an action verb (e.g., compare three methods with respect to some measure). Hypotheses are formulated as we discussed in class (e.g., a null hypothesis might be that three methods perform equally well and an alternative hypothesis might be that method will perform better than another). Research questions end with a question mark (e.g., which of the three methods performs best?). You may also encounter combinations of objectives, hypotheses, and questions. Pick one format for your proposal and run with it.
  - The methodology encompasses the principles, assumptions, and conceptual rationale underlying the choice of data collection and analysis techniques. Methodology thus unites the philosophical bases of a study with appropriate techniques, whereby good methodologies align the ontology of a study with its epistemology. Methodology thus refers to the design of a study and addresses the conceptual rationale for which data and methods are used and how.

- Data simply refers to the types of data you would include in your study. Methods refers to the techniques you would use to collect and analyze your data.
- The significance of your proposed research should address the intellectual merit and/or broader impacts of your work. Intellectual merit refers to the potential of your work to advance knowledge. Broader impacts relate to the potential of your work to advance desired societal outcomes.

Task 2: Evaluate another student's proposal, either individually or as a team, by <DATE>. Post your evaluation within the original proposal thread.

- Feedback instructions: Please evaluate one other student's proposal. When reviewing the other student's proposal, please provide thoughtful, kind, and constructively critical feedback. Please answer the following questions to guide your feedback and share them in this Canvas discussion.
- In your feedback, answer the following questions:
    - Does the proposal clearly state the research problem? What is it?
    - Does the proposal clearly state the research objectives, hypotheses, and/or questions? What are they?
    - Do you know from the proposal what the primary methodology will be? What is it?
    - Do you know from the proposal what the primary data and methods will be? What are they?
    - Does the proposal include a clear argument about the significance of the research? What is it?
    - Do you think the proposal would be understandable to a broad scholarly audience? Why or why not?
    - What are two questions that you have for the authors after reading the proposal?
    - What are two things that stand out to you as strengths of the proposal?
    - What are two ways in which the proposal could be improved?

Yellowdig Assignment
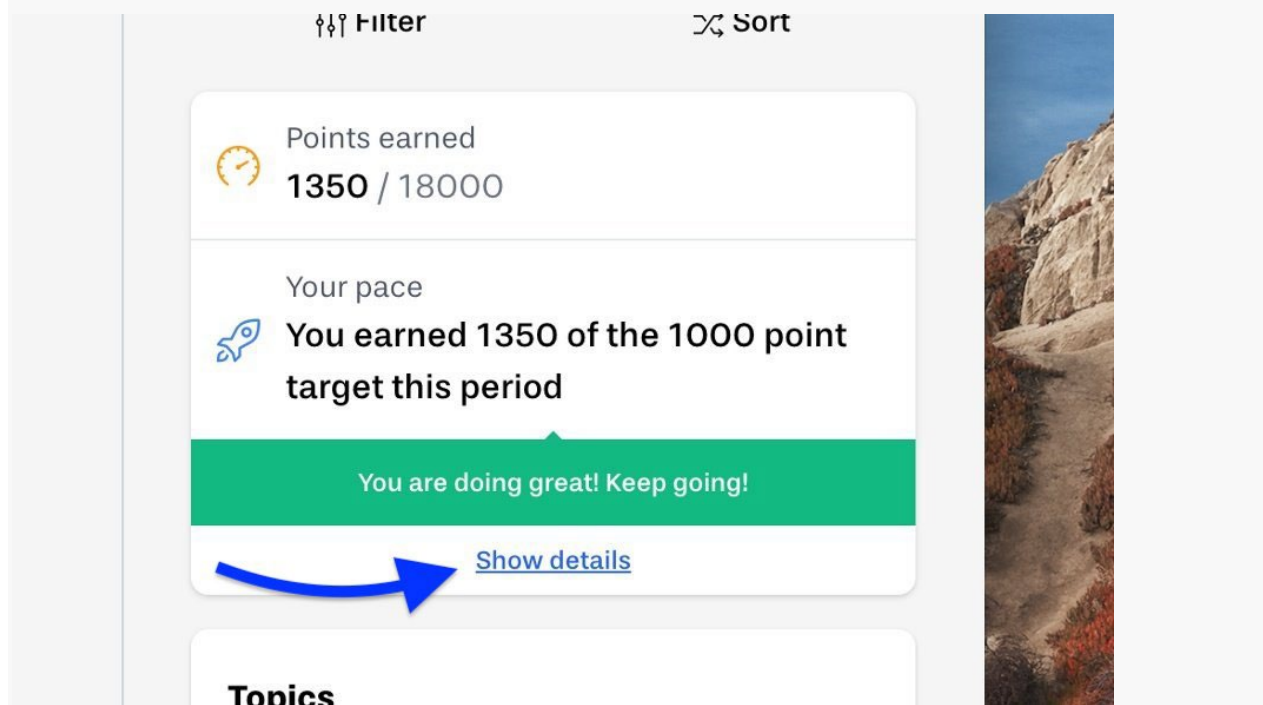
Introduction

It's our pleasure to welcome you to Yellowdig, your online community platform for the duration of our course.

Unlike typical Canvas discussions where everyone responds to the same prompt, Yellowdig lets you share and discuss real-world content (articles, videos, etc.) that YOU feel is relevant to lectures and readings or to ask questions you are curious about or need to know. As you create posts and make comments, and as other students react to or comment on your posts, you will automatically receive participation points. To be clear, using Yellowdig is a required part of the course, and the points you acquire will account for 22.2% of your GEOG 1115G course grade, or 15% of your combined GEOG 1115G/1115L course grades.

Instructions

The points you earn in Yellowdig are passed to the Canvas grade book, where you will see the grade you are currently on pace to earn. Your grade will not be finalized in the grade book until the end of the term or until you've earned all the points you need. To learn more about how points work, see this help articleLinks to an external site. along with the "Show details" link inside Yellowdig (shown in the image below).

For the first week:

We'd like you to get familiar with using Yellowdig by introducing yourselves. Please use the "Introduce Yourself" topic to share a bit about who you are and what you hope to gain from this class. You can find our introductions by clicking on the "Introduce Yourself" topic on the right or by searching for our names, which might give you some ideas for your own post. Feel free to include pictures, videos, or interesting links about yourself and your accomplishments! Once you're comfortable with Yellowdig, please engage in the "Introduction to Remote Sensing" topic, which is the focus for Week 1 of this mini-semester.

Throughout the rest of the semester:

We encourage you to share real-world examples related to the topics we cover in class in any given week. You can ask questions or continue conversations as they develop. You don't need to create your own post every week, but you should participate regularly. It's perfectly fine to earn points by reading and discussing what other students have shared. The goal is to foster interaction with your peers and instructors to enhance learning and curiosity while incorporating current events and cutting-edge information into the course.

Note: If you have any general or miscellaneous questions, you can post them in the "Optional: Muddy Points" topic, and we'll respond there.

If you have any questions about how Yellowdig works, try creating a post and ask us directly. You can mention us using the "@" symbol followed by our names, and we'll get a notification to ensure we see your question.

Grading Criteria

To earn the 15,000 points required for an "A" in Yellowdig by the end of the course, you will need to reach 1,000 points per week on average over the next 15 weeks. This Community has a point buffer of 25%, meaning you can earn up to 1,250 points per week. That means that, if you always participate up to the weekly maximum, you can reach the 15,000-point participation target in as few as 8 weeks.

At midnight every Saturday, the weekly maximum points will reset, and you will again have until the following Saturday to get up to the weekly maximum. If you are having a fun conversation, you can always keep posting even after you have reached the weekly maximum; you will just stop earning additional credit toward your grade until the next Saturday at midnight.

This tool needs to be loaded in a new browser window

Load Yellowdig in a new window

November 26, 2024

Dear Michaela,

I have reviewed your department's proposed course descriptions and student learning outcomes (included below) for inclusion in the CCNS Catalog, and I am pleased to approve the proposed changes on behalf of our department.

The addition of these course descriptions and learning outcomes to the CCNS Catalog will provide a clear and consistent framework for these courses, ensuring alignment across institutions. While UNM does not currently offer GEOG 1115 as a general education course, having it formally established within the catalog will provide an important foundation for future offerings.

Additionally, it is important to note that UNM offers the one-credit lab course, GEOG 1115L, as a corequisite with GEOG 1115. This ensures that students effectively complete a four-credit course that integrates theoretical knowledge with hands-on practical experience, strengthening their overall learning outcomes.

The descriptions and outcomes you've outlined reflect the rigor and interdisciplinary value of the course, and I am confident they will support student success across a variety of academic and professional pathways.

Thank you for your work on this, and please let me know if any further action is required.

Best regards,

Dr. Ronda Brulotte
Associate Professor & Associate Chair
Geography & Environmental Studies

Catalog description for 1115G
Explore the principles of Geographic Information Science (GIScience) and its applications in solving human, natural, and socio-environmental challenges. Learn to evaluate geospatial data and technologies; analyze their significance, implications, and applications; and communicate insights effectively. Topics include map use, spatial data analysis, Geographic Information Systems (GIS), remote sensing, and Global Navigation Satellite Systems (GNSS). Co-requisite: GEOG 1115L.

Catalog description for 1115L
Gain hands-on field and laboratory experience with geospatial tools, including Geographic Information Systems (GIS), remote sensing, and Global Navigation Satellite Systems (GNSS). Manage, collect, analyze,

interpret, and visualize spatial data to solve real-world problem, and develop your own GIScience research report. Co-requisite: GEOG 1115G.

SLOs for 1115G

Upon completion of this course, you should be able to:

1. Explain key concepts and methods of geographic information science (GIScience).

2. Articulate the significance of geographic information in decision-making processes that address human, natural, and socio-environmental challenges.
3. Evaluate the ethical, socio-environmental, and legal implications of geospatial data, technologies, and applications.
4. Evaluate spatial and aspatial data to assess human, natural, and socio-environmental problems, as well as potential solutions.

5. Communicate effectively in written and oral formats.

SLOs for 1115L

Upon completion of this course, you should be able to:

1. Collect spatial and aspatial data using various web and mobile apps.
2. Apply spatial and aspatial quantitative methods for data management, visualization, analysis, interpretation, and spatial problem-solving.
3. Create functional and aesthetically pleasing maps.
4. Develop a GIScience research report.
5. Communicate effectively in written and oral formats.

GEOG 1115G: Maps and GIScience

Instructor Information

TBD

- This is a new class that will be taught by Dr. Buenemann, Dr. Fan, and possibly others.
- Office: NMSU Main Campus, Breland Hall #
- Email
- Advising Hours
- Response Time: usually within 1 business day

Course Introduction

Course Overview

- Course prefix and number: GEOG 1115G
- Course title: Maps and GIScience
- Department: NMSU Department of Geography and Environmental Studies
- Semester: Fall 2025
- Credit hours: 3
- Access to course materials: online via the Canvas Learning Management System
- Meeting days, times, and locations:
    - TBD (See Course Delivery Method below for additional information.)

Course Description

Discover the transformative power of geospatial science in tackling real-world challenges! This course introduces the foundational principles of Geographic Information Science (GIScience) and its critical applications in assessing and solving human, natural, and socio-environmental problems Explore advanced technologies such as Geographic Information Systems (GIS), remote sensing, and Global Navigation Satellite Systems (GNSS) through real-world examples from academia, industry, and government. From mapping public health trends to addressing climate resilience, you'll develop the conceptual knowledge to articulate the value of geospatial data in diverse decision-making processes. This lecture-based course prepares you to critically evaluate the ethical, social, and environmental implications of geospatial technologies while sharpening your skills in data interpretation and effective communication. Together, the co-requisite lecture and lab (GEOG 1115L) courses provide a comprehensive learning experience, blending theoretical foundations with hands-on practice to prepare you for success in geospatial science. By the end of the course, you'll see the world—and its challenges—through a geospatial lens.

Course Learning Outcomes

Upon completion of this course, you should be able to:
1. Explain key concepts and methods of geographic information science (GIScience).
2. Articulate the significance of geographic information in decision-making processes that address human, natural, and socio-environmental challenges.
3. Evaluate the ethical, socio-environmental, and legal implications of geospatial data, technologies, and applications.

4. Evaluate spatial and aspatial data to assess human, natural, and socio-environmental problems, as well as potential solutions.
5. Communicate effectively in written and oral formats.

To help you achieve these learning outcomes while satisfying the requirements of all general education courses in New Mexico, we will include instruction and evaluation of the following three essential skills in the General Education Content Area "Science":

- Critical thinking
- Quantitative reasoning
- Personal and social responsibility

Textbook

There is no required textbook for this course. Readings will be made available to you through Canvas.

Course Delivery Method

This course will be offered in asynchronous online, synchronous online, face-to-face, and/or hybrid formats, either as a traditional 16-week course or as an 8-week course. Class sessions will include a combination of lectures, activities, and discussions. Lab sessions in the co-requisite GEOG 1111L course will include hands-on exercises related to the lecture topics and a GIScience research report. See the Course Overview for lecture and lab rooms and meeting times.

Course Organization

The course introduces a variety of interrelated ideas. It also provides you an opportunity to more deeply explore a specific topic of interest to you. To help you stay on top of things, we organized the course into five **Course Modules**, each of which will allow you to learn about several related themes. For more information about the organization of the course, check out the **Course Map**, the **Course Schedule**, and the Course Tour Video on the **Course Introduction** page. For more information about the nature of assignments in the course, read the Assignments and Criteria section below.

Course Engagement Hours

The co-requisite courses, GEOG 1115G and GEOG 1115L, together constitute a 4-credit-hour course. Overall, learning opportunities in the two co-requisite courses total approximately 170 hours, including approximately 127.5 for GEOG 1115G and 42 for GEOG 1115L. This time expectation aligns with NMSU and Federal standards related to the definition of student credit hours. The time estimate is for the typical student. The designed assignments may take you more or less time to complete depending on your familiarity with course topics and ability to take advantage of lab sessions.

Technology Requirements

Skills

You will need to meet certain technology responsibilities to complete the work for this course. If you have questions about technical requirements for the course, please contact us immediately. To begin in this course, you must be able to:

- obtain access to an internet connection, preferably broadband, and a working computer for the duration of this course;
- proficiently use Microsoft Office applications (see the Microsoft Office Training Center);
- conduct searches and find resources on the Internet (see the NMSU Library, Research Help for

Students at NMSU, and Internet Tutorials);
- send and receive NMSU emails and email attachments in and out of class (see NMSU email);
- use Canvas tools (see the Canvas Student Guide);
- maintain backups of all your course work (see 5 Ways to Back Up Your Data);
- follow technical instructions to accomplish new tasks; and
- be willing and able to learn new skills.

Computer Hardware & Software

To participate fully in this course, you will need access to the following technologies. The necessary software can be installed on your personal computers, and it is also accessible both in person and remotely in our computer lab in Breland Hall 192.
- Windows or Macintosh desktop or laptop computer with internet access as well as microphone, speakers, and camera;
- Internet and web browsers (see NMSU's minimum requirements for more detail)
- Canvas;
- Zoom;
- Microsoft Office;
- Adobe Acrobat Reader; and
- ArcGIS – see our Canvas pages for information on how to access the software tools on your computer or on how to access it remotely on computers in the Geography Computer Lab.

VPAT Statements

A Voluntary Product Accessibility Template, or VPAT, is a standardized form developed by the Information Technology Industry Council to show how a software product meets key regulations of Section 508 of the Rehabilitation Act. Below are the VPATs for the primary tools in this course.
- Canvas
- Zoom
- Microsoft Products
- Adobe Products
- ArcGIS Products

Privacy Policies

We take protecting and honoring your privacy very seriously at NMSU. The privacy policies for tools used in this course are noted below.
- Canvas
- Zoom
- Microsoft Products
- Adobe Products
- ArcGIS Products

Communication Expectations

Canvas Course Management System Website

Our course learning management system is Canvas, where you will have access to all course materials; your grades; as well as communication tools such as Announcements and Zoom. To access these

resources, simply log in to your Canvas account and click the link for this course. Canvas is critical element of this course and you are required to review its contents regularly. If you encounter problems related to Canvas, please contact us immediately.

Email and Canvas Messages

You can reach us at the NMSU email addresses provided under Instructor Information above or via Canvas Messages. Note that your NMSU email account is the official means of communicating with the university. Information critical to your success at NMSU is delivered to you via this account, and you are expected to follow rules and policies provided to you via this communication method. Any email from you to us should be sent either through your official NMSU email account or through Canvas messages. Please be advised that due to privacy and security concerns, we are unable to respond to emails from or about students that do not originate from an official NMSU email address. Unless we are away from the office with limited access to email, we will respond to your messages within one business day. Similarly, we expect you to respond to our emails in a timely manner. So, please access your NMSU email and Canvas messages frequently.

Announcements

We will send urgent and regular communication to all students using the Announcements tool in Canvas. It is a requirement in this class that you set your Announcements in Notifications to "Notify Immediately" to ensure that you receive any new announcements. (Go to Account>Notifications>Announcements and set to "Notify Immediately").

Video and Audio Recordings

Video and audio recordings will be available to all students registered for this class as they are intended to supplement the classroom experience. Students are expected to follow appropriate University policies (see ARP 11.05, Part 2, Letter 1) and maintain the security of passwords used to access recorded lectures. Unless Disability Access Services has approved a student to record class meetings, students are expressly prohibited from recording any part of this course. Recordings may not be published, reproduced, or shared with those not in the class, or uploaded to other online environments except to implement an approved disability accommodation. If we plan any uses for recordings involving students in the class, consent of the students identifiable in the recordings is required prior to such use unless an exception is allowed by law. For more information on your privacy and class recordings, review the U.S. Department of Education FERPA and Virtual Learning resources.

Netiquette

Netiquette is a set of conventions that promote polite and effective interactions over various kinds of networks such as live chat systems, internet discussion boards, or mailing lists. Our online course expectations for netiquette are:

- Always be polite and respectful in online correspondences.
- Remember that the concept of "politeness" is defined for us by the families and cultures of which we are a part. What is considered polite communication in one family or culture may be impolite in another. Sometimes you may inadvertently seem impolite or feel that someone else was being impolite. Talk it out instead of assuming the person meant to be rude.
- Pay attention to your word choice. Be sensitive to others.
- Do not attack. Don't flame someone. It is possible to disagree with an idea without personally attacking the person espousing the idea.
- Listen gently to others' views. Listen actively.

- Think critically. Critical thinking, grounded in intellectual integrity, is expected. In other words, seek clarity of meaning and understanding.
- Question ideas, not people.
- Begin all messages with a proper greeting that includes the name of the person/s you are contacting and conclude all messages with a closing that includes your name.
- Use spell proper spelling, grammar, and punctuation.
- Avoid using all caps (All caps is considered shouting.).
- Use emoticons and acronyms to convey your emotional intent and avoid misunderstandings.
- Attempt to see things from other people's perspectives.
- Use relevant supporting information.

What You Can Expect From Us

We will be available to you during our advising hours and scheduled appointments as well as via NMSU email and Canvas messages. Don't be shy and contact us as soon as ambiguities, problems, or worries arise. We will take all your questions, comments, and concerns seriously and respond to you as promptly and as specifically as possible. We will do our very best to provide you with a high-quality learning experience, grade assignments fairly, and offer feedback on your work within one week of turning it in. We reserve the right to make changes to course materials, assignments, and policies to better accommodate your learning needs. Any changes made will be published as soon as possible via Canvas Announcements and will not adversely affect your workload or grade. We encourage you to be both teacher and learner in this course. To that end, we like to encourage interactions among all participants and do not wish to be "sages on the stage."

What We Expect From Ourselves and You

By enrolling in this course and accepting this syllabus, you are agreeing to abide by all NMSU policies and codes as well as all specific guidelines outlined in this syllabus. We will do our very best to facilitate learning (i.e., to help you achieve the Course Learning Outcomes stated above)—we will promote an inclusive learning environment; always prepare and present class materials to the best of our abilities; and give you hands-on tasks that will help you better understand key concepts and methods. You are responsible for learning itself.

Course Grading

Feedback and Rubrics

All assignments will be graded within 1-week of the due date. Getting started tasks and exams will mostly be auto-graded by Canvas. Yellowdig assignments will be auto-graded by Yellowdig. Labs and project tasks will be graded manually, with rubrics attached to lengthier open-ended questions and individual feedback provided using the Canvas Documentation Annotation tool and Assignment Comments. Please make sure to review assignment rubrics before completing assignments. Here is information on how to access assignment feedback in Canvas:

- View Rubric results
- Access Document Annotation
- See Assignments Comments

Assignments and Criteria

Your final grades for GEOG 1115G and GEOG 1115L will be determined based on five major types of

assignments: getting started tasks, Yellowdigs, project tasks, exams, and lab exercises. The getting started tasks, Yellowdigs, exams, and project tasks count toward your GEOG 1115G grade; the lab exercises count toward your GEOG 1115L grade. All assignments in this course are intended to help you acquire the **learning outcomes (LOs; i.e., descriptions of things you should be able to do)** of individual units, modules, and the course as a whole. Yellowdigs, exams, and lab exercises for any given module reinforce each other and build on materials provided in the lectures, readings, and lab instructions. The project gives you an opportunity to explore in more depth a GIScience topic of particular interest to you. If you have any questions about the purpose of instructional materials and their relationships to each other, please let us know. For your information, each major assignment type is described briefly below and in further detail in Canvas. The following paragraphs describe the grade components in GEOG 1115G. Refer to the separate GEOG 1115L syllabus for a description of the grade components in that course.

Getting Started Tasks

The getting started tasks are designed to help you navigate Canvas; describe the course's learning outcomes, organization, and policies; meet the instructors and other students in the class; and set up the course technologies. While these tasks involve interaction with both the instructors and your peers, these tasks are individual efforts to be completed at home prior within the first week of class and account for 25 points (2.5%) of your final course grade.

Yellowdigs

Yellowdig is a digital platform embedded within Canvas where you can interact in an informal and fun manner with other students and instructors, much like you probably already do on social media platforms. The topic for each week is given, but the specific conversation is entirely driven by our Yellowdig community. The platform uses a points system to incentivize your participation and rewards active engagement with the course material through original posts, post replies, and more. There will be seven weeks of Yellowdig discussions, each accounting for 10 points of your final grade or for a combined total of 150 points (15%). Yellowdig posts are due by midnight on Saturdays each week.

Exams

There will be four open-book exams, one at the end of Module 1 (50 points), one after Module 2 (100 points), one after Modules 3 and 4 (100 points), and a final exam at the end of Module 5 (100 points). The exams will cover all units prior to each exam and include problems at all levels of Bloom's Revised Taxonomy. So, the exams will require you to define or explain basic concepts but will also challenge you to apply old ideas in new contexts and to analyze, interpret, and evaluate problems. The exams are individual efforts and account for a combined total of 350 points (35%) of your final course grade.

GIScience Project

The GISscience project is an opportunity for you to use geospatial data and tools to explore a topic of great interest to you. You will work on this project during Modules 3, 4, and 5. The project will account for 150 points (150%) of your final course grade.

Additional information regarding the above assignments will be provided to you in class and on Canvas.

Grade Components and Weights

Your final course grade will be based on the points you earn on the following assignments.

Grade Components Table

Assignments	Units	Points	Weight
Getting Started Tasks	1	25	3.7%
Yellowdigs	15	150	22.2%

Exams	4	350	51.9%
Project	1	150	22.2%
Total	21	675	100.0%

Grading Scale

Your final course letter grade will be assigned using the following fractional scale, with rounding occurring using the "half round up" method.

Grading Scale Table

Grade	Percentage	GPA
A+	> 99%	4.0
A	94% to 98%	4.0
A-	90% to 93%	3.7
B+	87% to 89%	3.3
B	84% to 86%	3.0
B-	80% to 83%	2.7
C+	77% to 79%	2.3
C	74% to 76%	2.0
C-	70% to 73%	2.0
D+	67% to 69%	1.0
D	64% to 66%	1.0
D-	60% to 63%	1.0
F	< 60%	0.0

Curving of Grades

Individual assignments and tests will not be curved (↑ or ↓). We *may* make adjustments of the final letter grade after an assessment of the class curve at the end of the term. We consider class participation and improvement over the term as justification for discounting a grade that is uncharacteristically lower than others.

Incomplete Grades

Under university policy, incompletes may be given only if a student has a passing grade at mid-semester (the last day to withdraw from a class) and is precluded from successful completion of the second half of the course by a documented illness, documented death, family crisis or other similar circumstances beyond the student's control. An incomplete should not be given to avoid assigning a grade for marginal or failing work. Visit ARP 4.55 Part 2, Letter D for more information.

Late Work

Work not received by the deadline will earn 0 points, except in unusual circumstances. We have three major reasons for not accepting late work. First, it is difficult to keep up with students who turn things in late and determine just how much to dock an assignment. Our time is better spent on improving course materials and providing better feedback. Second, there will be no confusion concerning when assignments are due. Third, imposing hard deadlines will prepare you for the real world. To ensure you meet all deadlines, allow extra time for glitches in computer hardware and software, internet connectivity, etc.; i.e., start working on assignments early and try to submit them ahead of time. If you are unable to submit your work on time due to extenuating circumstances, please discuss the situation with us as soon as possible so that we can develop solutions that support you.

Attendance

There is no requirement for attending class. However, keep in mind that learning is your responsibility and that, if you miss a class, you will have to figure4 out how to "make it up." If you have to miss class for an extended period for medical or other reasons, please contact us as soon as possible so that we can help you navigate this challenging time and succeed in the course.

Honors Course

Students who are Crimson Scholars (3.5 GPA) who wish to have this course count as an Honors course may do so by completing the Honors Contract Form. We will assign you additional work that will permit you to gain Honors credits for this course in your major. These credits will count as upper division credits towards the accumulation of 18 credits needed to graduate with University Honors. For additional information on pursuing the Honors recognition at graduation, contact the Honors College at 575-646-2005 or email Dean Camarena. Completed Contract forms must be submitted in person to the Honors College no later than 1 week after the beginning of each semester.

University Policies

NMSU is committed to ensuring all students have the support they need to be successful and expand their educational horizons. Please visit this webpage for the most up-to-date student services and university policies.

Ethics Statement

As members of the NMSU community, we are all bound by the ethical guidelines established by the college. This includes policies regarding sexual and ethnic harassment; discrimination based on race, color, religion, national origin, gender, age, handicap, sexual orientation, and veteran status; academic honesty and plagiarism; and other guidelines for appropriate professional and student behavior. Many of these policies are outlined in the Student Handbook. If you have any questions or concerns regarding these policies, please consult with any faculty member, including the department head.

Academic and Non-Academic Integrity

Enrollment in this course and acceptance of this syllabus is your contract constituting acceptance of all University policies regarding academic and non-academic integrity. You are expected to comply fully with the NMSU Student Code of Conduct, which defines academic misconduct, non-academic misconduct, and the consequences or penalties for each. The Student Code of Conduct is available in the NMSU Student Handbook. Academic misconduct is explained here. Students who are judged to be guilty of academic misconduct, which includes cheating (incl. presenting AI-generated content as your own), plagiarism, and other forms of academic dishonesty, will be reported as required by NMSU policy (ARP Policy 5.10).

Disability Accommodations

Section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act Amendments Act (ADA) covers issues relating to disability and accommodations. If a student has questions or needs an accommodation in the classroom (all medical information is treated confidentially), contact Main Campus Disability Access Services (DAS), Corbett Center Student Union, Room 204, 575-646-6840; Email.

Discrimination and Title IX

NMSU, in compliance with applicable laws and in furtherance of its commitment to fostering an

environment that welcomes and embraces diversity, does not discriminate on the basis of age, ancestry, color, disability, gender identity, genetic information, national origin, race, religion, retaliation, serious medical condition, sex (including pregnancy), sexual orientation, spousal affiliation, or protected veteran status in its programs and activities, including employment, admissions, and educational programs and activities. Title IX prohibits sex harassment, sexual assault, intimate partner violence, stalking and retaliation. For more information on discrimination or Title IX, or to file a complaint, contact the Office of Institutional Equity (OIE), O'Loughlin House, 1130 University Avenue; Phone: (575) 646-3635; E-mail. time to be excused from class for such observances.

Student Resources

NMSU is committed to ensuring all students have the support they need to be successful and expand their educational horizons. Please visit this webpage for the most up-to-date student services and university policies.

Academic Resources

NMSU provides students with diverse academic resources such as tutoring, library and research, and transcript information. For more information, visit the Aggie One-Stop [Web, Email, Phone: (575) 646-6678].

Student Support Services

The Aggie One-Stop [Web, Email, Phone: (575) 646-6678] is also designed to help both undergraduate and graduate students manage the business of going to college. It provides resources to connect with university departments as well as information about admissions, financial aid, registration, bill payment, student records, advising, housing, paring, and health & wellness.

Technical Support

NMSU Information Technology Services (ICT) is equipped to deal with all of your information technology and telecommunications needs at NMSU. ICT hours of operation are from 8:00 am until 5:00 pm Monday through Friday Mountain Time. Please feel free to contact them at (575) 646-1840 or via Email. You can also go to the IT Student Technology & Planning and Technology Resources for Students webpages for information.

Campus Activities

Campus Activities offers activities outside the classroom involvement. The program/services are non-academic and are provided directly to the student. A complete list of offered activities can be found on the Campus Activity website.

Aggie Cupboard

Information on NMSU's food pantry can be found at Aggie Cupboard.

Other NMSU Resources

NMSU Police Department: (575) 646-3311;NMSU Aggie Health & Wellness (medical and counseling services): (575) 646-1512; NMSU Dean of Students: (575) 646-1722; For Any On-Campus Emergencies: 911.

Important Dates

For important dates regarding courses offered this semester (e.g., last days to add a course and last days to withdraw from the class or university), refer to this website.

Syllabus Modifications Statement

This syllabus is subject to revision to best fit the educational needs of the class. Any changes will be announced as soon as possible in class and/or on Canvas and will not adversely affect your workload or grade. For the most recent version of the syllabus, always consult Canvas.

Tentative Course Schedule

The tentative course schedule below shows the close linkage between GEOG 1115G and 1115L. Both share the same course topics each week. GEOG 1115G assignments are printed in italic and bold letters. For reference, GEOG 1115L assignments are printed in italic letters.

Module 1: Introduction to Digital Earth	
Week 1	**Getting Started** *No Lab* ***Getting Started Tasks Due*** ***Yellowdig 1 Due***
Week 2	**Introduction to Digital Earth** *Lab 1: StoryMaps* ***Yellowdig 2 Due***
Week 3	**Spatial and Aspatial Data** *Lab 2: ArcGIS Insights* ***Yellowdig 3 Due*** ***Exam 1 Due***
Module 2: Technologies and Platforms – 5 weeks	
Week 4	**Global Navigation Satellite System (GNSS, e.g., GPS)** *Lab 3: Survey123, QuickCapture, and FieldMaps* ***Yellowdig 4 Due***
Week 5	**Geographic Information Systems (GIS)** *Lab 4: ArcGIS Pro* ***Yellowdig 5 Due***
Week 6	**Remote Sensing** *Lab 5: ENVI* ***Yellowdig 6 Due***
Week 7	**Cartography** *Lab 6: Map Viewer* ***Yellowdig 7 Due***
Week 8	**GIScience and Information Technology (IT)** *Lab 7: Experience Builder* ***Yellowdig 8 Due*** ***Exam 2 Due***
Week 9	**Spring Break**

Module 3: Applications in the Social Sciences and Humanities	
Week 10	**Social sciences** *Lab 8: Business Analyst & Location Analysis* ***Project Task 1 Due*** ***Yellowdig 9 Due***
Week 11	**Humanities** *Lab 9: Living Atlas & Digital Story Telling* ***Yellowdig 10 Due***
Module 4: Applications in the Natural and Formal Sciences	
Week 12	**Natural sciences** *Lab 10: ArcGIS Online & Climate Resilience* ***Project Task 2 Due*** ***Yellowdig 11 Due***
Week 13	**Formal Sciences** *Lab 11: Programming 101* ***Yellowdig 12 Due*** ***Exam 3 Due***
Module 5: Applications in Environmental Monitoring and Assessment	
Week 14	**Intro to Integrated Socio-Environmental Systems** *Lab 12: GeoPlanner & Earth's Critical Zone* ***Yellowdig 13 Due***
Week 15	**Global Environmental Change** *Lab 13: Dashboards & Deforestation* ***Project Task 3 Due*** ***Yellowdig 14 Due***
Week 16	Environmental Change in Drylands ***Yellowdig 15 Due*** ***Exam 4 Due***
Week 17	***Project Tasks 4 and 5 Due***

NEW MEXICO
HIGHER EDUCATION
DEPARTMENT
Fostering Student Success from Cradle to Career

Michelle Lujan Grisham, Governor
Stephanie M. Rodriguez, Cabinet Secretary
Patricia Trujillo, Deputy Secretary

New Mexico General Education Curriculum Course Certification Form

Application Number   3117

Institution and Course Information

Name of Institution	NMSU
Chief Academic Officer Name	Lakshmi Reddi
Chief Academic Officer Email	provost@nmsu.edu
Registrar Name	Gabrielle Martinez
Registrar Email	gdmart@nmsu.edu
Department	Geography and Environmental Studies
Prefix	GEOG
Number	1115L
Suffix	
Title	Maps and GIScience Laboratory
Number of Credits	1

Was this course previously part of the general education curriculum?

☐ Yes   ☒ No

Is this application for your system (ENMU, NMSU, & UNM)?

☐ Yes   ☒ No

Co-Requisite Course Information

Prefix	GEOG
Number	1115
Suffix	n/a
Title	Maps and GIScience

New Mexico Common Course information

Prefix	GEOG
Number	1115L
Suffix	
Title	Maps and GIScience Laboratory

A. Content Area and Essential Skills

To which content area should this course be added? *Indicate "Other" if the course is not associated with one of the six NM General Education content areas.*

☐ Communications   ☐ Mathematics   ☒ Science   ☐ Social & Behavioral Sciences

☐ Humanities   ☐ Creative & Fine Arts   ☐ Flex

Which essential skills will be addressed?

☐ Communication ☒ Critical Thinking ☐ Information & Digital Literacy

☒ Quantitative Reasoning ☒ Personal & Social Responsibility

B. Learning Outcomes

List all common course student learning outcomes for the course.

1. Collect spatial and aspatial data using various web and mobile apps.
2. Apply spatial and aspatial quantitative methods for data management, visualization, analysis, interpretation, and spatial problem-solving.
3. Create functional and aesthetically pleasing maps.
4. Develop a GIScience research report.
5. Communicate effectively in written and oral formats.

List all institution-specific Student Learning Outcomes that are common to all course sections offered at the institutions regardless of instructor.

n/a

C. Narrative

In the boxes provided, write a short (~300 words) narrative explaining how the course weaves the essential skills associated with the content area throughout the course. Explain what students are going to do to develop the essential skills and how you will assess their learning. The narrative should be written with a general audience in mind and avoid discipline specific jargon as much as possible.

Be sure to address the component skills listed next to each essential skill. The number of component skills that must be addressed by your narrative is listed.

Communication. *Genre and Medium Awareness, Application and Versatility; Strategies for Understanding and Evaluating Messages; and Evaluation and Production of Arguments.*

Critical Thinking. *Problem Setting; Evidence Acquisition; Evidence Evaluation; and Reasoning/Conclusion*
Students in GEOG 1115G and GEOG 1115L are required to engage in critical thinking throughout the semester, as suggested by the diverse topics and assignments noted in the attached syllabus. That is, over the course of the semester, students in the class acquire, analyze, and interpret evidence about people (e.g., demographics and transportation) and the environment (e.g., climate and vegetation) and their interactions (e.g., land use) to evaluate important real-world problems in human, natural, and integrated socio-environmental systems (e.g., problem settings like site suitability mapping, weather analysis, or land degradation assessments) and develop potential solutions to these issues. This is accomplished through in-class activities like discussions and, most importantly, through hands-on lab exercises. For example, in one exercise (see attached sample exercise), students predict where and how much deforestation would likely occur in a portion of the Brazilian Amazon rainforest if a proposed road were built. To do

so, students use diverse data (e.g., population, roads, and satellite-based data on forests and deforestation), feature editing tools, and analysis methods. Students evaluate and communicate results in writing and using maps.

Quantitative Reasoning. *Communication/Representation of Quantitative Information; Analysis of Quantitative Arguments; and Application of Quantitative Models*

Students in GEOG 1115G / GEOG 1115L use quantitative reasoning in all lab exercises and various in-class activities, with quantitative data collected and created in a variety of forms (e.g., tables, graphs, diagrams, maps, and satellite imagery). In the deforestation exercise, for example, students use various geospatial analytical tools to calculate the percentage of deforested land around existing roads and to make spatial predictions about likely future deforestation. In this exercise, students primarily communicate their findings through maps. In another exercise, students use mobile apps to collect field data on earthquake and fire disaster preparedness as well as emergency assets, analyze the data using descriptive statistics and charts, and communicate the results using interactive web apps with charts and maps. Finally, in yet another exercise, students identify a suitability modeling problem (e.g., where the best place might be for a new business), define the problem in terms of analysis goals and suitability criteria that can be modeled with data, prepare the data for the problem, and then create simple and weighted suitability models to identify optimal locations for the problem at hand. The exercise uses quantitative data as input; employs quantitative models to process the data; generates quantitative suitability surfaces; and requires the analysis, interpretation, and evaluation of these surfaces to make informed decisions about the chosen problem. Students' quantitative reasoning skills are demonstrated through a written lab report with maps.

Personal & Social Responsibility. *Intercultural reasoning and intercultural competence; Sustainability and the natural and human worlds; Ethical reasoning; Collaboration skills, teamwork and value systems; and Civic discourse, civic knowledge and engagement – local and global*

An overarching goal of GEOG 1115G / GEOG 1115L is to teach students how to use spatial and aspatial data and methods to analyze, visualize, interpret, evaluate, and communicate real-world human, natural, and socio-environmental problems and potential sustainable solutions (ii. Sustainability and the natural and human worlds). The two exercises described above are examples of how we plan to achieve this goal. To give one more example, in another exercise, students explore flood and mudslide risk by investigating census data, filtering geologic hazard data, and creating new data by integrating existing data. The exercise results in an assessment of where which populations are most vulnerable and thus informs strategies for minimizing the loss of life and property if a flood or mudslide were to occur. GEOG 1115G also addresses "v. Civic discourse, civic knowledge and engagement – local and global". This happens as part of the disaster preparedness exercise described above and several others. For example, in one assignment, students need to identify and engage with a government agency, non-governmental organization, or business that uses geospatial data and methods. Students need to determine what the group's mission is, how it carries out that mission, how the organization contributes to civic discourse, how it promotes active community engagement, and how it may further advance civic knowledge and engagement. This exercise teaches students about importance of civic discourse in general and also gives them insights into the power of GIS&T for tackling real-world problems as well as the diverse job opportunities that exist for geospatial professionals.

Information & Digital Literacy. *Authority and Value of Information; Digital Literacy; Information Structure; and Research as Inquiry*

D. Assessment (Must be on file with HED by August 1, 2019)

Link to Institution's General Education Assessment Plan	https://gened.nmsu.edu/recertification-and-assessment/Institutional-GE-Assessment-Plan.pdf

GEOG 1115L: Maps and GIScience Laboratory

Instructor Information

TBD

- This is a new class that will be taught by Dr. Buenemann, Dr. Fan, and possibly others.
- Office: NMSU Main Campus, Breland Hall #
- Email
- Advising Hours
- Response Time: usually within 1 business day

Course Introduction

Course Overview

- Course prefix and number: GEOG 1115L
- Course title: Maps and GIScience Laboratory
- Departments: NMSU Department of Geography and Environmental Studies
- Semester: Fall 2025
- Credit hours: 1
- Access to course materials: online via the Canvas Learning Management System
- Meeting days, times, and locations:
    - TBD (See Course Delivery Method below for additional information.)

Course Description

Get hands-on with geospatial tools in this lab-based course! In 1115L, you'll dive into field and laboratory techniques for collecting, managing, analyzing, interpreting, and presenting spatial and aspatial data. Develop practical experience through web and mobile applications, Geographic Information Systems (GIS), Global Navigation Satellite Systems (GNSS), remote sensing, and cartographic design. Whether mapping cultural trends or assessing environmental changes, you'll learn to apply spatial problem-solving methods and create functional, visually compelling maps. By developing a GIScience research report, you'll translate data into actionable insights for academic, professional, and community audiences. This course equips you with the technical skills to apply geospatial concepts to real-world applications. Together, the co-requisite lab and lecture (GEOG 1115) courses provide a comprehensive learning experience, integrating practice with theory to prepare you for success in geospatial science.

Course Learning Outcomes

Upon completion of this course, you should be able to:
1. Collect spatial and aspatial data using various web and mobile apps.
2. Apply spatial and aspatial quantitative methods for data management, visualization, analysis, interpretation, and spatial problem-solving.
3. Create functional and aesthetically pleasing maps.
4. Develop a GIScience research report.
5. Communicate effectively in written and oral formats.

To help you achieve these learning outcomes while satisfying the requirements of all general education

courses in New Mexico, we will include instruction and evaluation of the following three essential skills in the General Education Content Area "Science":

- Critical thinking
- Quantitative reasoning
- Personal and social responsibility

Textbook and Lab Manual

There is no required lab manual for this course. Lab exercises will be made available to you through Canvas.

Course Delivery Method

This course will be offered in asynchronous online, synchronous online, face-to-face, and/or hybrid formats, either as a traditional 16-week course or as an 8-week course. Class sessions will include a combination of lectures, activities, and discussions. Lab sessions in the co-requisite GEOG 1111L course will include hands-on exercises related to the lecture topics and a GIScience research report. See the Course Overview for lecture and lab rooms and meeting times.

Course Organization

The course introduces a variety of interrelated ideas. It also provides you an opportunity to more deeply explore a specific topic of interest to you. To help you stay on top of things, we organized the course into five **Course Modules**, each of which will allow you to learn about several related themes. For more information about the organization of the course, check out the **Course Map**, the **Course Schedule**, and the Course Tour Video on the **Course Introduction** page. For more information about the nature of assignments in the course, read the Assignments and Criteria section below.

Course Engagement Hours

The co-requisite courses, GEOG 1115G and GEOG 1115L, together constitute a 4-credit-hour course. Overall, learning opportunities in the two co-requisite courses total approximately 170 hours, including approximately 127.5 for GEOG 1115G and 42 for GEOG 1115L. This time expectation aligns with NMSU and Federal standards related to the definition of student credit hours. The time estimate is for the typical student. The designed assignments may take you more or less time to complete depending on your familiarity with course topics and ability to take advantage of lab sessions.

Technology Requirements

Skills

You will need to meet certain technology responsibilities to complete the work for this course. If you have questions about technical requirements for the course, please contact us immediately. To begin in this course, you must be able to:

- obtain access to an internet connection, preferably broadband, and a working computer for the duration of this course;
- proficiently use Microsoft Office applications (see the Microsoft Office Training Center);
- conduct searches and find resources on the Internet (see the NMSU Library, Research Help for Students at NMSU, and Internet Tutorials);
- send and receive NMSU emails and email attachments in and out of class (see NMSU email);
- use Canvas tools (see the Canvas Student Guide);

- maintain backups of all your course work (see [5 Ways to Back Up Your Data](#));
- follow technical instructions to accomplish new tasks; and
- be willing and able to learn new skills.

Computer Hardware & Software

To participate fully in this course, you will need access to the following technologies. The necessary software can be installed on your personal computers, and it is also accessible both in person and remotely in our computer lab in Breland Hall 192.

- Windows or Macintosh desktop or laptop computer with internet access as well as microphone, speakers, and camera;
- Internet and web browsers (see [NMSU's minimum requirements](#) for more detail)
- [Canvas;](#)
- [Zoom](#);
- [Microsoft Office](#);
- [Adobe Acrobat Reader](#); and
- [ArcGIS](#) – see our Canvas pages for information on how to access the software tools on your computer or on how to access it remotely on computers in the Geography Computer Lab.

VPAT Statements

A Voluntary Product Accessibility Template, or VPAT, is a standardized form developed by the Information Technology Industry Council to show how a software product meets key regulations of Section 508 of the Rehabilitation Act. Below are the VPATs for the primary tools in this course.

- [Canvas](#)
- [Zoom](#)
- [Microsoft Products](#)
- [Adobe Products](#)
- [ArcGIS Products](#)

Privacy Policies

We take protecting and honoring your privacy very seriously at NMSU. The privacy policies for tools used in this course are noted below.

- [Canvas](#)
- [Zoom](#)
- [Microsoft Products](#)
- [Adobe Products](#)
- [ArcGIS Products](#)

Communication Expectations

Canvas Course Management System Website

Our course learning management system is [Canvas](#), where you will have access to all course materials; your grades; as well as communication tools such as Announcements and Zoom. To access these resources, simply log in to your Canvas account and click the link for this course. Canvas is critical element of this course and you are required to review its contents regularly. If you encounter problems related to Canvas, please contact us immediately.

Email and Canvas Messages

You can reach us at the NMSU email addresses provided under Instructor Information above or via Canvas Messages. Note that your NMSU email account is the official means of communicating with the university. Information critical to your success at NMSU is delivered to you via this account, and you are expected to follow rules and policies provided to you via this communication method. Any email from you to us should be sent either through your official NMSU email account or through Canvas messages. Please be advised that due to privacy and security concerns, we are unable to respond to emails from or about students that do not originate from an official NMSU email address. Unless we are away from the office with limited access to email, we will respond to your messages within one business day. Similarly, we expect you to respond to our emails in a timely manner. So, please access your NMSU email and Canvas messages frequently.

Announcements

We will send urgent and regular communication to all students using the Announcements tool in Canvas. It is a requirement in this class that you set your Announcements in Notifications to "Notify Immediately" to ensure that you receive any new announcements. (Go to Account>Notifications>Announcements and set to "Notify Immediately").

Video and Audio Recordings

Video and audio recordings will be available to all students registered for this class as they are intended to supplement the classroom experience. Students are expected to follow appropriate University policies (see ARP 11.05, Part 2, Letter 1) and maintain the security of passwords used to access recorded lectures. Unless Disability Access Services has approved a student to record class meetings, students are expressly prohibited from recording any part of this course. Recordings may not be published, reproduced, or shared with those not in the class, or uploaded to other online environments except to implement an approved disability accommodation. If we plan any uses for recordings involving students in the class, consent of the students identifiable in the recordings is required prior to such use unless an exception is allowed by law. For more information on your privacy and class recordings, review the U.S. Department of Education FERPA and Virtual Learning resources.

Netiquette

Netiquette is a set of conventions that promote polite and effective interactions over various kinds of networks such as live chat systems, internet discussion boards, or mailing lists. Our online course expectations for netiquette are:
- Always be polite and respectful in online correspondences.
- Remember that the concept of "politeness" is defined for us by the families and cultures of which we are a part. What is considered polite communication in one family or culture may be impolite in another. Sometimes you may inadvertently seem impolite or feel that someone else was being impolite. Talk it out instead of assuming the person meant to be rude.
- Pay attention to your word choice. Be sensitive to others.
- Do not attack. Don't flame someone. It is possible to disagree with an idea without personally attacking the person espousing the idea.
- Listen gently to others' views. Listen actively.
- Think critically. Critical thinking, grounded in intellectual integrity, is expected. In other words, seek clarity of meaning and understanding.
- Question ideas, not people.
- Begin all messages with a proper greeting that includes the name of the person/s you are

contacting and conclude all messages with a closing that includes your name.
- Use spell proper spelling, grammar, and punctuation.
- Avoid using all caps (All caps is considered shouting.).
- Use emoticons and acronyms to convey your emotional intent and avoid misunderstandings.
- Attempt to see things from other people's perspectives.
- Use relevant supporting information.

What You Can Expect From Us

We will be available to you during our advising hours and scheduled appointments as well as via NMSU email and Canvas messages. Don't be shy and contact us as soon as ambiguities, problems, or worries arise. We will take all your questions, comments, and concerns seriously and respond to you as promptly and as specifically as possible. We will do our very best to provide you with a high-quality learning experience, grade assignments fairly, and offer feedback on your work within one week of turning it in. We reserve the right to make changes to course materials, assignments, and policies to better accommodate your learning needs. Any changes made will be published as soon as possible via Canvas Announcements and will not adversely affect your workload or grade. We encourage you to be both teacher and learner in this course. To that end, we like to encourage interactions among all participants and do not wish to be "sages on the stage."

What We Expect From Ourselves and You

By enrolling in this course and accepting this syllabus, you are agreeing to abide by all NMSU policies and codes as well as all specific guidelines outlined in this syllabus. We will do our very best to facilitate learning (i.e., to help you achieve the Course Learning Outcomes stated above)—we will promote an inclusive learning environment; always prepare and present class materials to the best of our abilities; and give you hands-on tasks that will help you better understand key concepts and methods. You are responsible for learning itself.

Course Grading

Feedback and Rubrics

All assignments will be graded within 1-week of the due date. Getting started tasks and exams will mostly be auto-graded by Canvas. Yellowdig assignments will be auto-graded by Yellowdig. Labs and project tasks will be graded manually, with rubrics attached to lengthier open-ended questions and individual feedback provided using the Canvas Documentation Annotation tool and Assignment Comments. Please make sure to review assignment rubrics before completing assignments. Here is information on how to access assignment feedback in Canvas:

- View Rubric results
- Access Document Annotation
- See Assignments Comments

Assignments and Criteria

Your final grades for GEOG 1115G and GEOG 1115L will be determined based on five major types of assignments: getting started tasks, Yellowdigs, project tasks, exams, and lab exercises. The getting started tasks, Yellowdigs, exams, and project tasks count toward your GEOG 1115G grade; the lab exercises count toward your GEOG 1115L grade. All assignments in this course are intended to help you acquire the **learning outcomes (LOs; i.e., descriptions of things you should be able to do)** of individual

units, modules, and the course as a whole. Yellowdigs, exams, and lab exercises for any given module reinforce each other and build on materials provided in the lectures, readings, and lab instructions. The project gives you an opportunity to explore in more depth a GIScience topic of particular interest to you. If you have any questions about the purpose of instructional materials and their relationships to each other, please let us know. For your information, each major assignment type is described briefly below and in further detail in Canvas. The following paragraphs describe the grade components in GEOG 1115L. Refer to the separate GEOG 1115G syllabus for a description of the grade components in that course.

Lab Exercises

The lab exercises are hands-on activities intended to help you apply geospatial concepts and methods to real-world data. All labs provide background materials that emphasize the close linkage between the conceptual and practical aspects of the course as well as step-by-step instructions for using diverse geospatial data and tools for problem-solving. Lab exercises are individual efforts that you may complete at home or in our computer lab in Breland Hall 192, where a TA will be available during our lab sessions to help you troubleshoot lab problems as needed. Lab exercises are a crucial component of this course and may be time-consuming to complete. To acknowledge both the importance of the labs and your effort to complete them, there will be thirteen lab exercises this semester, each accounting for 25 points of the final course grade or for a combined total of 325 points (32.5%). Lab exercises are due by midnight on Saturdays the week after they were assigned.

Grade Components and Weights

Your final course grade will be based on the points you earn on the following assignments.

Grade Components Table

Assignments	Units	Points	Weight
Lab Exercises	13	325	100.0%
Total	13	325	100.0%

Grading Scale

Your final course letter grade will be assigned using the following fractional scale, with rounding occurring using the "half round up" method.

Grading Scale Table

Grade	Percentage	GPA
A+	> 99%	4.0
A	94% to 98%	4.0
A-	90% to 93%	3.7
B+	87% to 89%	3.3
B	84% to 86%	3.0
B-	80% to 83%	2.7
C+	77% to 79%	2.3
C	74% to 76%	2.0
C-	70% to 73%	2.0
D+	67% to 69%	1.0
D	64% to 66%	1.0
D-	60% to 63%	1.0
F	< 60%	0.0

Grading Scale

Your final course letter grade will be assigned using the following fractional scale, with rounding occurring using the "half round up" method.

Grading Scale Table

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A-	90% to 93%	3.7
B+	87% to 89%	3.3
B	84% to 86%	3.0
B-	80% to 83%	2.7
C+	77% to 79%	2.3
C	74% to 76%	2.0
C-	70% to 73%	2.0
D+	67% to 69%	1.0
D	64% to 66%	1.0
D-	60% to 63%	1.0
F	< 60%	0.0

Curving of Grades

Individual assignments and tests will not be curved (↑ or ↓). We *may* make adjustments of the final letter grade after an assessment of the class curve at the end of the term. We consider class participation and improvement over the term as justification for discounting a grade that is uncharacteristically lower than others.

Incomplete Grades

Under university policy, incompletes may be given only if a student has a passing grade at mid-semester (the last day to withdraw from a class) and is precluded from successful completion of the second half of the course by a documented illness, documented death, family crisis or other similar circumstances beyond the student's control. An incomplete should not be given to avoid assigning a grade for marginal or failing work. Visit ARP 4.55 Part 2, Letter D for more information.

Late Work

Work not received by the deadline will earn 0 points, except in unusual circumstances. We have three major reasons for not accepting late work. First, it is difficult to keep up with students who turn things in late and determine just how much to dock an assignment. Our time is better spent on improving course materials and providing better feedback. Second, there will be no confusion concerning when assignments are due. Third, imposing hard deadlines will prepare you for the real world. To ensure you meet all deadlines, allow extra time for glitches in computer hardware and software, internet connectivity, etc.; i.e., start working on assignments early and try to submit them ahead of time. If you are unable to submit your work on time due to extenuating circumstances, please discuss the situation with us as soon as possible so that we can develop solutions that support you.

Attendance

There is no requirement for attending class. However, keep in mind that learning is your responsibility and that, if you miss a class, you will have to figure4 out how to "make it up." If you have to miss class

for an extended period for medical or other reasons, please contact us as soon as possible so that we can help you navigate this challenging time and succeed in the course.

Honors Course

Students who are Crimson Scholars (3.5 GPA) who wish to have this course count as an Honors course may do so by completing the [Honors Contract Form](#). We will assign you additional work that will permit you to gain Honors credits for this course in your major. These credits will count as upper division credits towards the accumulation of 18 credits needed to graduate with University Honors. For additional information on pursuing the Honors recognition at graduation, contact the Honors College at 575-646-2005 or [email Dean Camarena](#). Completed Contract forms must be submitted in person to the Honors College no later than 1 week after the beginning of each semester.

University Policies

NMSU is committed to ensuring all students have the support they need to be successful and expand their educational horizons. Please visit [this webpage](#) for the most up-to-date student services and university policies.

Ethics Statement

As members of the NMSU community, we are all bound by the ethical guidelines established by the college. This includes policies regarding sexual and ethnic harassment; discrimination based on race, color, religion, national origin, gender, age, handicap, sexual orientation, and veteran status; academic honesty and plagiarism; and other guidelines for appropriate professional and student behavior. Many of these policies are outlined in the [Student Handbook](#). If you have any questions or concerns regarding these policies, please consult with any faculty member, including the department head.

Academic and Non-Academic Integrity

Enrollment in this course and acceptance of this syllabus is your contract constituting acceptance of all University policies regarding academic and non-academic integrity. You are expected to comply fully with the NMSU Student Code of Conduct, which defines academic misconduct, non-academic misconduct, and the consequences or penalties for each. The Student Code of Conduct is available in the [NMSU Student Handbook](#). Academic misconduct is explained [here](#). Students who are judged to be guilty of [academic misconduct](#), which includes cheating (incl. presenting AI-generated content as your own), [plagiarism](#), and other forms of academic dishonesty, will be reported as required by [NMSU policy (ARP Policy 5.10)](#).

Disability Accommodations

Section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act Amendments Act (ADA) covers issues relating to disability and accommodations. If a student has questions or needs an accommodation in the classroom (all medical information is treated confidentially), contact Main Campus [Disability Access Services (DAS)](#), Corbett Center Student Union, Room 204, 575-646-6840; [Email](#).

Discrimination and Title IX

NMSU, in compliance with applicable laws and in furtherance of its commitment to fostering an environment that welcomes and embraces diversity, does not discriminate on the basis of age, ancestry, color, disability, gender identity, genetic information, national origin, race, religion, retaliation, serious medical condition, sex (including pregnancy), sexual orientation, spousal affiliation, or protected veteran

status in its programs and activities, including employment, admissions, and educational programs and activities. Title IX prohibits sex harassment, sexual assault, intimate partner violence, stalking and retaliation. For more information on discrimination or Title IX, or to file a complaint, contact the Office of Institutional Equity (OIE), O'Loughlin House, 1130 University Avenue; Phone: (575) 646-3635; E-mail. time to be excused from class for such observances.

Student Resources

NMSU is committed to ensuring all students have the support they need to be successful and expand their educational horizons. Please visit this webpage for the most up-to-date student services and university policies.

Academic Resources

NMSU provides students with diverse academic resources such as tutoring, library and research, and transcript information. For more information, visit the Aggie One-Stop [Web, Email, Phone: (575) 646-6678].

Student Support Services

The Aggie One-Stop [Web, Email, Phone: (575) 646-6678] is also designed to help both undergraduate and graduate students manage the business of going to college. It provides resources to connect with university departments as well as information about admissions, financial aid, registration, bill payment, student records, advising, housing, paring, and health & wellness.

Technical Support

NMSU Information Technology Services (ICT) is equipped to deal with all of your information technology and telecommunications needs at NMSU. ICT hours of operation are from 8:00 am until 5:00 pm Monday through Friday Mountain Time. Please feel free to contact them at (575) 646-1840 or via Email. You can also go to the IT Student Technology & Planning and Technology Resources for Students webpages for information.

Campus Activities

Campus Activities offers activities outside the classroom involvement. The program/services are non-academic and are provided directly to the student. A complete list of offered activities can be found on the Campus Activity website.

Aggie Cupboard

Information on NMSU's food pantry can be found at Aggie Cupboard.

Other NMSU Resources

NMSU Police Department: (575) 646-3311;NMSU Aggie Health & Wellness (medical and counseling services): (575) 646-1512; NMSU Dean of Students: (575) 646-1722; For Any On-Campus Emergencies: 911.

Important Dates

For important dates regarding courses offered this semester (e.g., last days to add a course and last days to withdraw from the class or university), refer to this website.

Syllabus Modifications Statement

This syllabus is subject to revision to best fit the educational needs of the class. Any changes will be announced as soon as possible in class and/or on Canvas and will not adversely affect your workload or grade. For the most recent version of the syllabus, always consult Canvas.

Tentative Course Schedule

The tentative course schedule below shows the close linkage between GEOG 1115L and 1115G. Both share the same course topics each week. GEOG 1115L assignments are printed in italic and bold letters. For reference, GEOG 1115G assignments are printed in italic letters.

Module 1: Introduction to Digital Earth	
Week 1	**Getting Started** ***No Lab*** *Getting Started Tasks Due* *Yellowdig 1 Due*
Week 2	**Introduction to Digital Earth** ***Lab 1: StoryMaps*** *Yellowdig 2 Due*
Week 3	**Spatial and Aspatial Data** ***Lab 2: ArcGIS Insights*** *Yellowdig 3 Due* *Exam 1 Due*
Module 2: Technologies and Platforms – 5 weeks	
Week 4	**Global Navigation Satellite System (GNSS, e.g., GPS)** ***Lab 3: Survey123, QuickCapture, and FieldMaps*** *Yellowdig 4 Due*
Week 5	**Geographic Information Systems (GIS)** ***Lab 4: ArcGIS Pro*** *Yellowdig 5 Due*
Week 6	**Remote Sensing** ***Lab 5: ENVI*** *Yellowdig 6 Due*
Week 7	**Cartography** ***Lab 6: Map Viewer*** *Yellowdig 7 Due*
Week 8	**GIScience and Information Technology (IT)** ***Lab 7: Experience Builder*** *Yellowdig 8 Due* *Exam 2 Due*
Week 9	**Spring Break**
Module 3: Applications in the Social Sciences and Humanities	
Week 10	**Social sciences**

	Lab 8: Business Analyst & Location Analysis *Project Task 1 Due* *Yellowdig 9 Due*
Week 11	**Humanities** *Lab 9: Living Atlas & Digital Story Telling* *Yellowdig 10 Due*
Module 4: Applications in the Natural and Formal Sciences	
Week 12	**Natural sciences** *Lab 10: ArcGIS Online & Climate Resilience* *Project Task 2 Due* *Yellowdig 11 Due*
Week 13	**Formal Sciences** *Lab 11: Programming 101* *Yellowdig 12 Due* *Exam 3 Due*
Module 5: Applications in Environmental Monitoring and Assessment	
Week 14	**Intro to Integrated Socio-Environmental Systems** *Lab 12: GeoPlanner & Earth's Critical Zone* *Yellowdig 13 Due*
Week 15	**Global Environmental Change** *Lab 13: Dashboards & Deforestation* *Project Task 3 Due* *Yellowdig 14 Due*
Week 16	Environmental Change in Drylands *Yellowdig 15 Due* *Exam 4 Due*
Week 17	*Project Tasks 4 and 5 Due*

Customize a climate resilience index

Use the Composite Index tool to create an index showing where extreme heat mitigation is needed.

Extreme heat is just one of many hazards exacerbated by climate change. High temperatures can cause or worsen health conditions, including heat exhaustion, and the hazard is especially intensified in urban areas due to the urban heat island effect. The urban heat island effect is created when human-built materials, such as asphalt, concrete, and rooftops absorb and hold heat from sunlight, making ambient air temperatures higher. The heat island effect has been shown to raise urban daytime temperatures higher than suburban and outlying areas with less built area.

One of many ways that communities can take action to mitigate extreme heat and reduce the urban heat island effect is by planting more trees. Trees not only provide shade to people in their immediate vicinity, but also can cool ambient temperatures through the process of evapotranspiration, releasing water from the ground into the air. To decide where tree planting as a mitigation strategy is most appropriate, communities first need to know where the worst effects of extreme heat are being felt and where tree cover already exists.

In this tutorial, you'll create a heat risk index showing where to prioritize tree planting in Sevilla, Spain, with three variables: average summer surface temperature, percent of area without tree cover, and population density.

This process can be adapted for your own city, town, or other area of interest. If you're adapting this index process, consider what additional demographic and environmental variables should be used to produce actionable results.

This tutorial was last tested on June 26, 2024, using ArcGIS Pro 3.3. If you're using a different version of ArcGIS Pro, you may encounter different functionality and results.

Requirements

- ArcGIS organizational account with a Publisher, Facilitator, or Administrator role (see options for software access)
- ArcGIS Pro

Outline

Prepare index variables

The first step to creating a heat risk index is to prepare the input data. You'll use three variables for your index: average summer surface temperature, percent of area without tree cover, and population density. Each of these inputs is derived from ArcGIS Living Atlas of the World data, and can be repeated or customized for your own neighborhood or other area of interest.

Add data for the study area

The example heat risk index (HRI) will be calculated for Sevilla, a city in southern Spain. Before processing the data that will comprise the risk index, you'll find and prepare census data for Sevilla. This layer will be used to filter and clip global raster services, and will allow you to create the index within neighborhood-level geometries meaningful to local planning and intervention.

1. Start ArcGIS Pro. If prompted, sign in using your licensed ArcGIS organizational account.

    Note:

    If you don't have access to ArcGIS Pro or an ArcGIS account (for ArcGIS Online or ArcGIS Enterprise), see options for software access.

2. Under **New Project**, click **Map**.
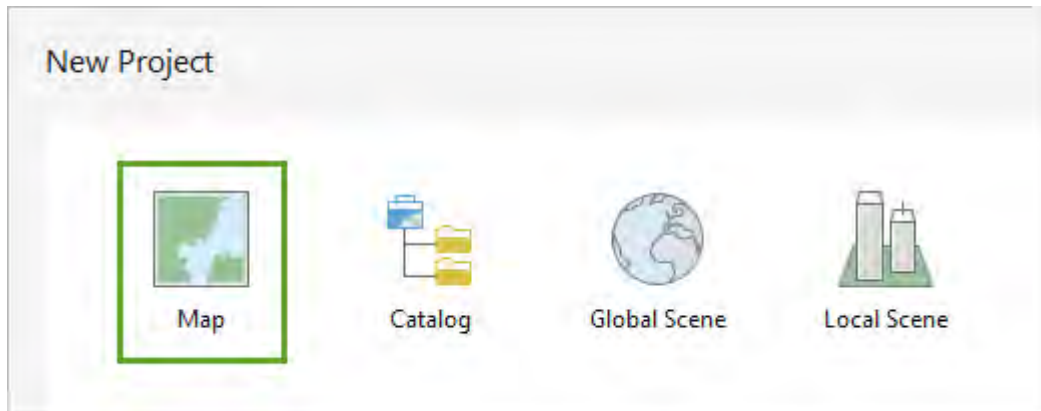
3. In the **Create a New Project** window, for **Name**, type `Sevilla Heat Resilience Index`. Click **OK**.

   The project is created. First, you'll add a boundary layer to the map. For this tutorial, you'll use Spanish census section boundaries from the ArcGIS Living Atlas.

   Tip:

   Depending on your goals for the index, different boundaries may be a better choice. For example, if local decisions are made at the neighborhood or city council level, it may be more meaningful to use those boundaries in order to provide decision makers with specific context. In other cases, if your region doesn't have small enough administrative or census units or if you want to analyze at smaller resolutions, you might consider creating tessellations, or a smaller grid, for analysis. Keep in mind that you'll likely need to add demographic data to whichever geography you choose.

4. On the ribbon, click the **Map** tab. In the **Layer** group, click the **Add Data** button.
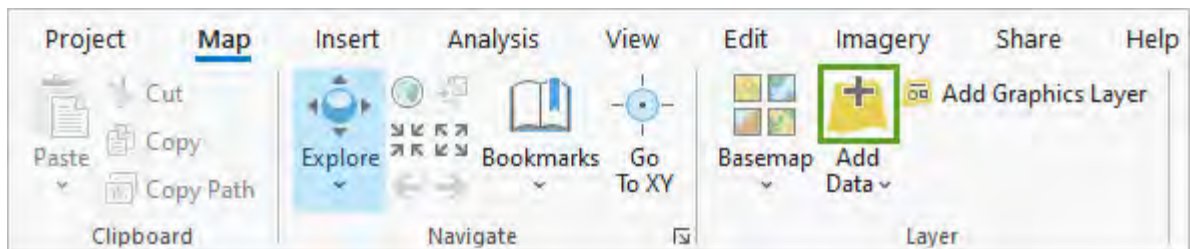
5. In the side menu of the **Add Data** window, under **Portal**, click **Living Atlas**.
6. Search for `Spain census sections owner:esri_dm`. Click the **Spain Census Section Boundaries** feature layer to select it.

   Tip:

Adding `owner:` and the owner name to a search filters search results by a specific owner.
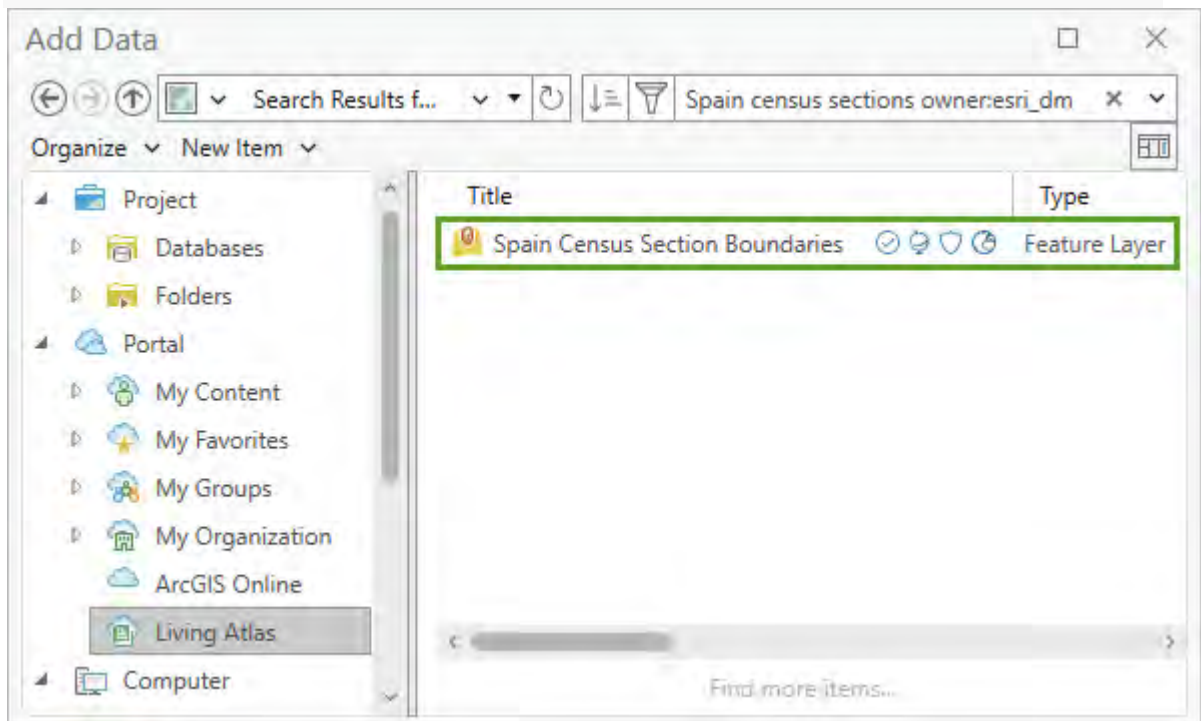
7. Click **OK**.

The layer is added to the map and the map zooms to Spain. You'll filter the census sections to only show Sevilla.

8. In the **Contents** pane, right-click **ESP_CensusSection** and choose **Attribute Table**.

The attribute table opens. The city where each census section is located is listed in the **Name** field.

Note:

If you don't see the **Name** field, click the **Options** button in the attribute table ribbon and click **Show All Fields**.

9. In the attribute table, for **Selection**, click **Select By Attributes**.

The **Select By Attributes** tool opens.

10. In the **Select By Attributes** tool, build the query **Where Name is equal to Sevilla** and click **OK**.

    The bottom of the attribute table indicates that 521 sections are selected. You'll save a copy of this filtered layer to your project so that you can work with the data.

11. On the ribbon, click the **Analysis** tab. In the **Geoprocessing** group, click **Tools**.

    The **Geoprocessing** pane opens.

12. In the **Geoprocessing** pane, search for and open **Export Features (Conversion Tools)**.
13. For **Input Features**, choose **ESP_CensusSection**. For **Output Feature Class**, type `Sevilla_Census_Sections`.

14. Click **Run**.

When the tool is finished running, the **Sevilla_Census_Sections** layer is added to the **Contents** pane. You can now remove the original census sections layer.

15. In the **Contents** pane, right-click **ESP_CensusSection** and choose **Remove**.

Next, you'll symbolize the **Sevilla_Census_Sections** layer so that you can see it on top of the layers you'll add later.

16. In the **Contents** pane, right-click **Sevilla_Census_Sections** and choose **Symbology**.
17. For **Symbol**, click the current symbol swatch. On the **Gallery** tab, under **ArcGIS 2D**, click **Black Outline (1 pt)**.
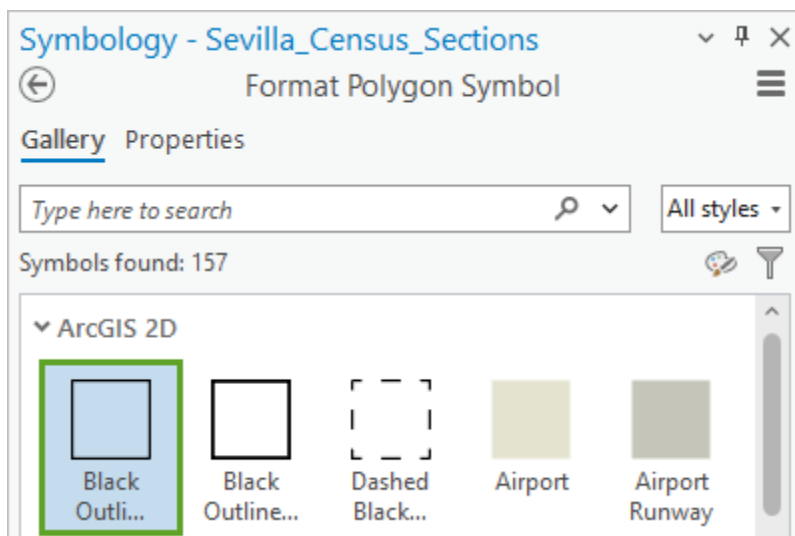
The layer also has a transparency applied that makes the boundaries difficult to see against the basemap.

18. On the ribbon, click the **Feature Layer** contextual tab. In the **Effects** group, change **Transparency** to **0 percent**.
19. In the **Contents** pane, right-click **Sevilla_Census_Sections** and choose **Zoom To Layer**.
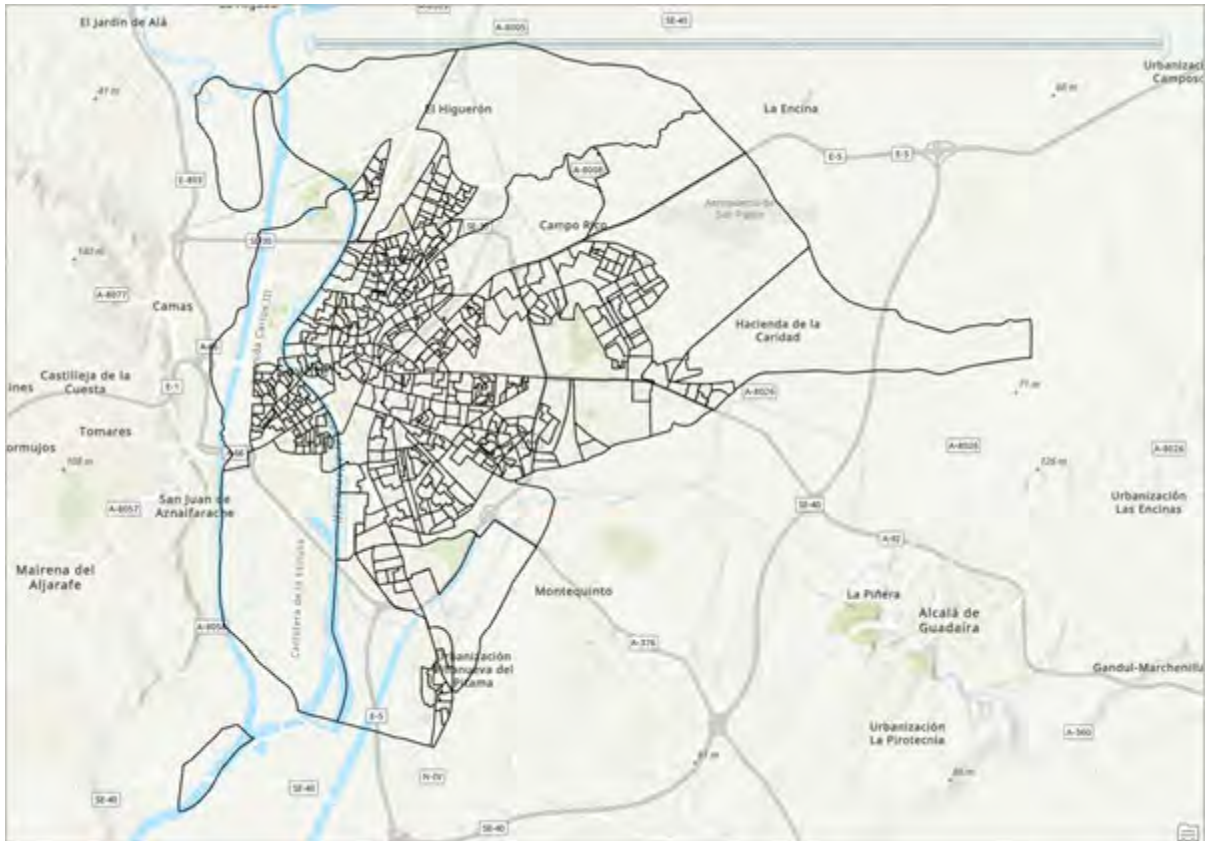
Your area of interest layer is now symbolized and centered on the map. You'll use this extent later to clip the raster data for use.

20. On the **Quick Access Toolbar**, click the **Save Project** button.

The project is saved.

Prepare Landsat surface temperature data

The first variable in your index is average summer surface temperature, which can be derived from global Landsat Level-2 imagery available in ArcGIS Living Atlas. To prepare this input, you'll add the image service to your map and find scenes available for your area of interest. Then, you'll copy the raster locally and use the **Zonal Statistics as Table** tool to determine the maximum value within each Sevilla census section.

Tip:

Depending on your study area and available data, you might choose to use a different source for heat data. For example, you might prefer to download Landsat data from the Landsat Explorer app. The app allows you to select and preview scenes before downloading them. Another option is to use high resolution urban heat island data from the National Integrated Heat Health Information Systems (NIHHIS) and Climate Adaptation Planning and Analytics (CAPA) program. NIHHIS-CAPA data is available for specific cities in the U.S. and around the world who have participated in the heat mapping campaign. See if your city has been mapped or how to apply.

1. On the ribbon, click the **Map** tab. In the **Layer** group, click the **Add Data** button.
2. In the **Add Data** window, ensure **Living Atlas** is selected. Search for and add the **Landsat Level-2** imagery layer owned by **esri_imagery**.
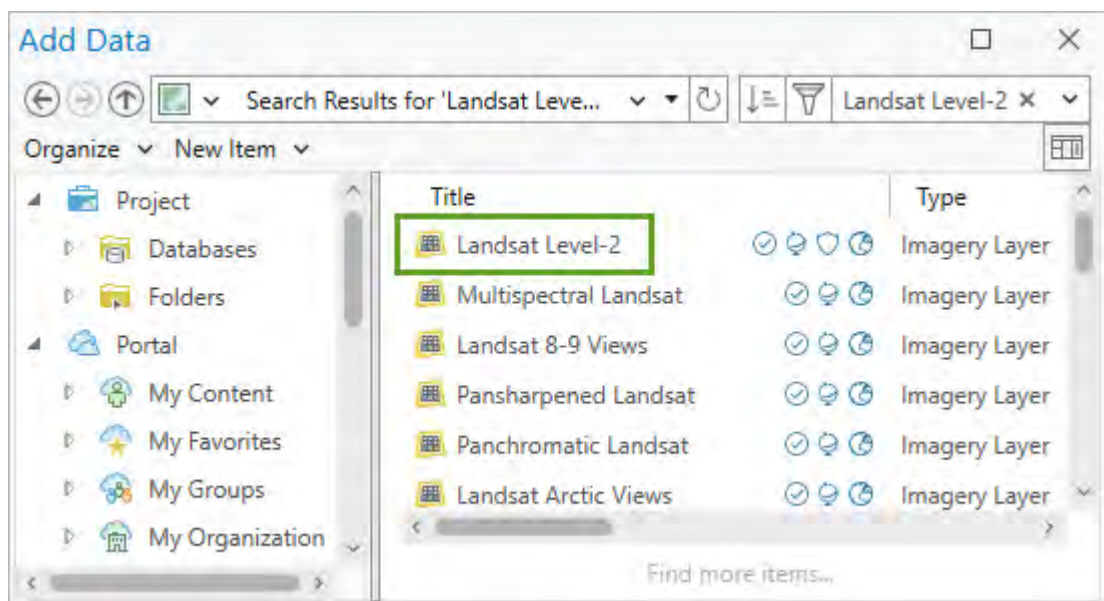
The Landsat Level-2 imagery layer is added to your project. The Level-2 collection of science products has atmospherically corrected surface reflectance and surface temperature data dating to 1982. You'll adjust the Landsat service properties to get only the temperature data you're interested in.

3. In the **Contents** pane, double-click **Landsat Level-2**.

The **Layer Properties** window appears.

4. In the **Layer Properties** window, click the **Processing Templates** tab.
5. For **Processing Template**, choose **Surface Temperature (Celsius)**.

Layer Properties: Landsat Level-2

General	Processing Template	Natural Color with DRA
Metadata		Natural Color with DRA
Source	Description	Agriculture with DRA
Elevation		Color Infrared with DRA
Selection		Geology with DRA
Display	Help	Short-wave Infrared with DRA
Cache		Urban with DRA
Definition Query		Bathymetric with DRA
Time		Surface Temperature (Celsius)
Range	Inputs	Surface Temperature (Fahrenheit)
Mosaic		NDWI Raw
Processing Templates		NDBI Raw
Custom Parameters		NDVI Raw
		NDMI Raw
		MNDWI Raw

6. Click the **Mosaic** tab. For **Mosaic operator**, choose **Mean**.

    This service uses a mosaic dataset to manage the decades' worth of scenes. By default, it displays the first scene. Selecting the mean operator will calculate an average temperature value from all the scenes available for your area of interest and based on the filters you'll apply. Next, you'll add a definition query with two arguments: Cloud Cover is less than or equal to 10 percent and scenes were acquired during summer months.

7. Click the **Definition Query** tab and click**New definition query**.
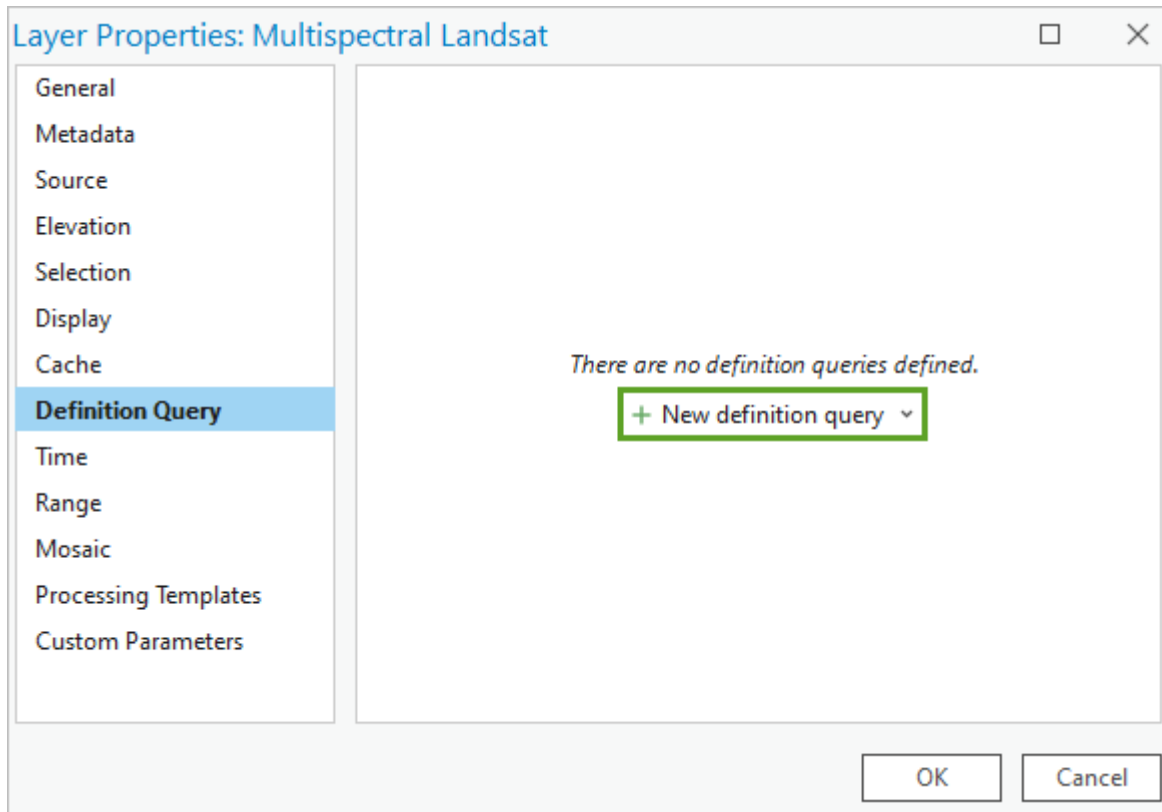
8. Build the expression **Where Cloud Cover is less than or equal to 0.10**. Click **Add Clause**.
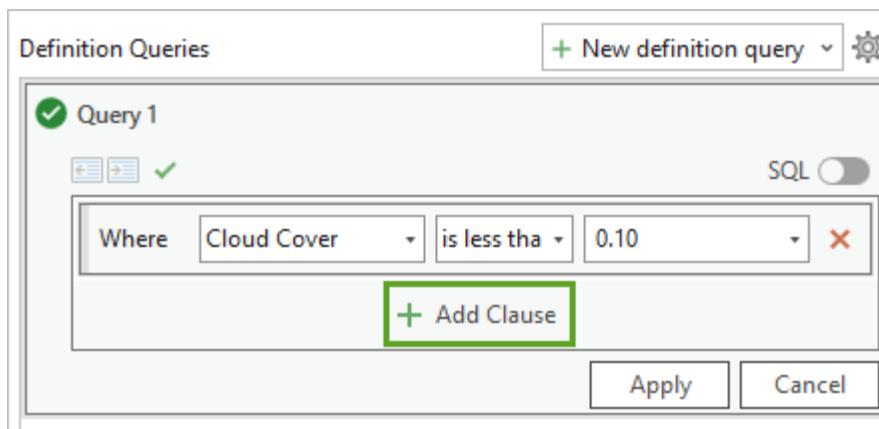
This query will filter out all scenes with more than 10 percent cloud cover. Clouds and cloud shadows in Landsat scenes adversely impact the results of any analysis.

9. Build the expression **And Month includes the value(s) 6,7,8**.

This clause will include only months that are considered summer months in the northern hemisphere. Your query now has two clauses.
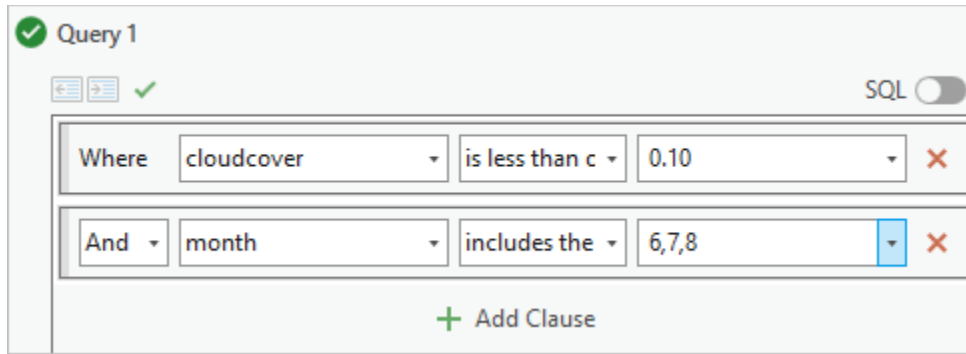
10. For **Query 1**, click **Apply**. In the **Layer Properties** window, click **OK**.

The service may take a few minutes to update. When it's finished, the scenes may show as a gray rectangle. To visualize the average summer temperatures in the layer, you'll symbolize the raster.

11. In the **Contents** pane, right-click **Landsat Level-2** and choose **Symbology**.
12. In the **Symbology** pane, for **Statistics**, click **Dataset** and choose **DRA**.
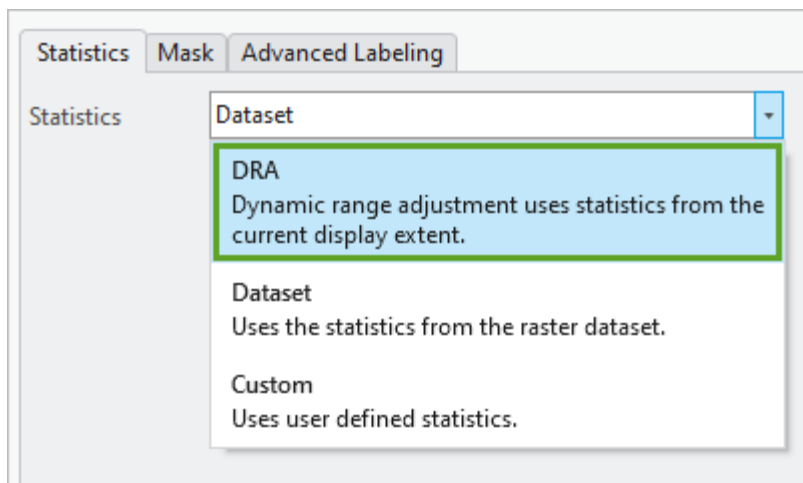
DRA is short for dynamic range adjustment, which automatically adjusts your active stretch type as you navigate around your image based on the pixel values in your current display.

13. For **Color scheme**, choose a graduated color ramp such as **Inferno**.

Tip:

Point to color ramps to see their name.
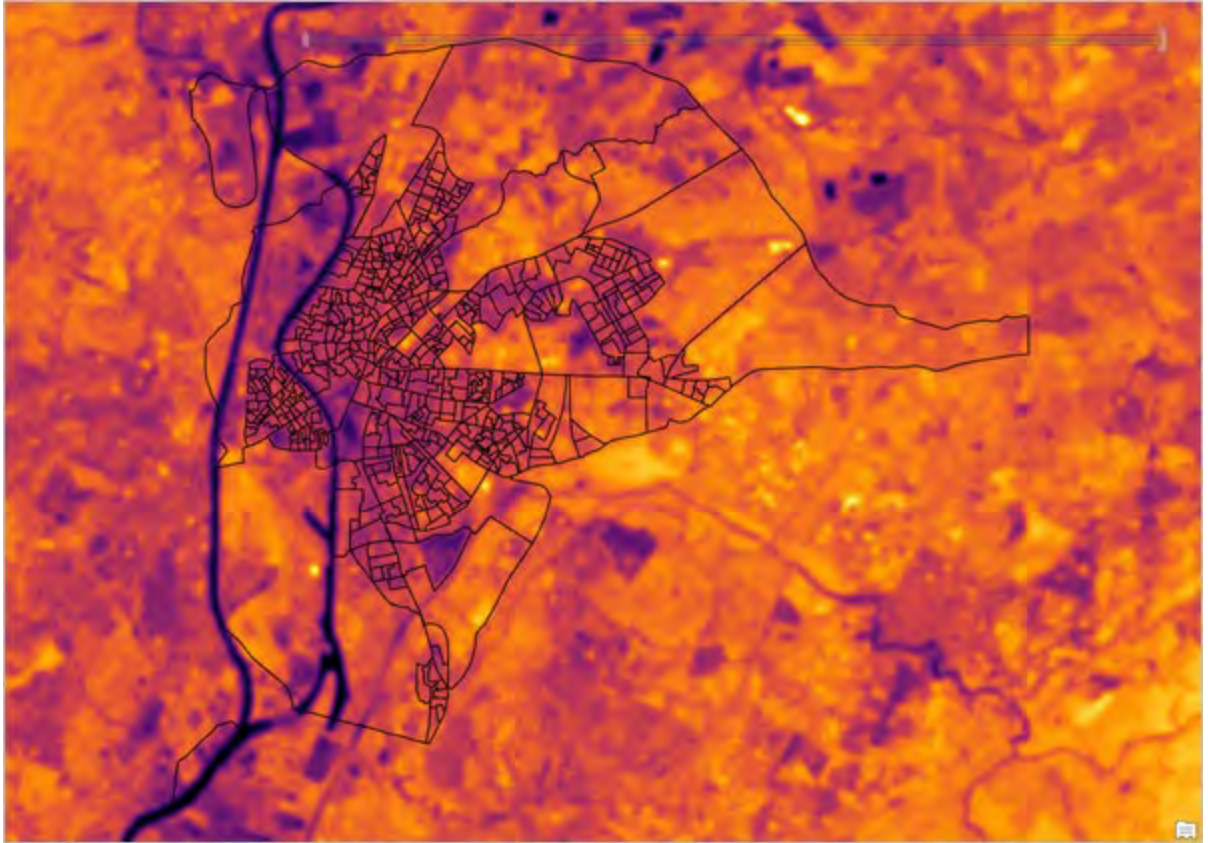
Calculate the average summer surface temperature

Now that you've set the processing template and filters on the Landsat imagery, you'll copy just these scenes of interest to your project.

1. In the **Contents** pane, right-click **Landsat Level-2** and choose **Attribute Table**.
2. At the bottom of the attribute table, click the **Filter by Extent** button.

The table is filtered to show only the scenes available in the map's current extent, the Sevilla region.

3. Close the attribute table. In the **Contents** pane, right-click **Sevilla_Census_Sections** and choose **Zoom To Layer**.
4. In the **Geoprocessing** pane, open the **Copy Raster** tool.
5. For **Input Raster**, choose **Landsat Level-2**.

Note:

A red X may appear next to the **Input Raster** parameter, indicating the parameter is invalid. The Landsat Imagery service only allows exports of 4000x4000 pixels at a time. Before running this tool, you'll set a processing extent to ensure that the raster export is within these limits.

6. For **Output Raster Dataset**, click the **Browse** button.

You'll save this raster as a TIFF file, which can't be stored in a geodatabase.

7. In the **Output Raster Dataset** window, under **Project**, click **Folders**. Double-click the **Sevilla Heat Resilience Index** project folder.

Note:

If you gave your project a different name, the project folder's name will also be different.

8. For **Name**, type `Avg_SurfaceTemp_Sevilla.tif`.
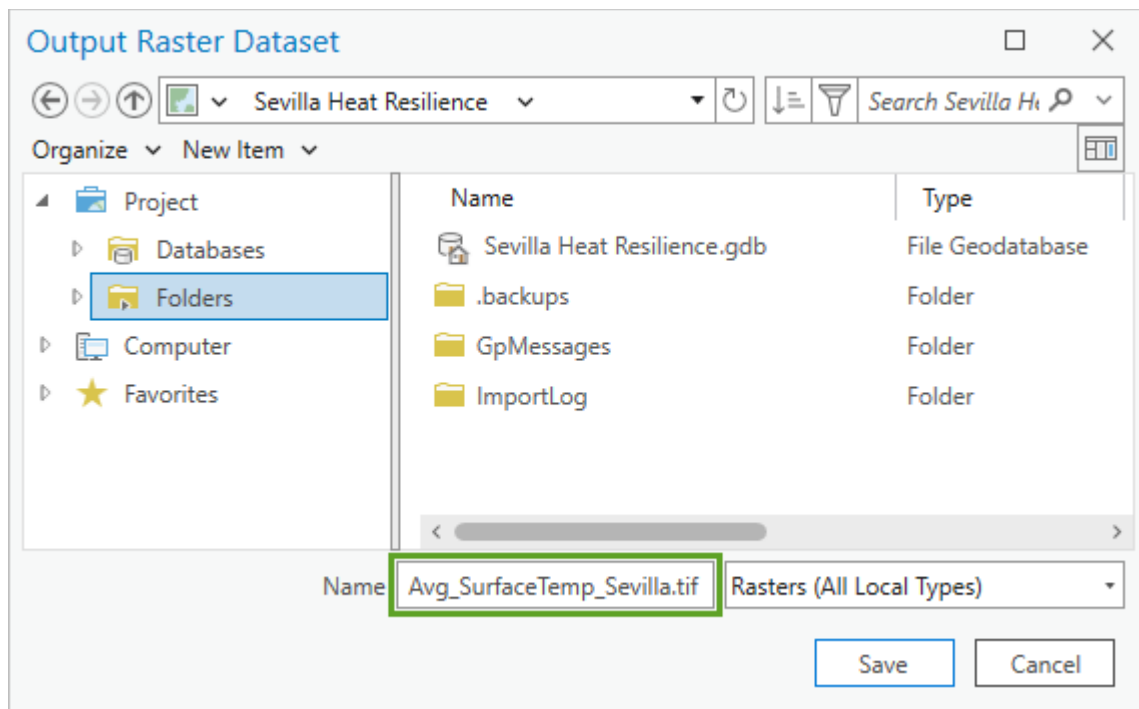
9. Click **Save**.
10. In the **Geoprocessing** pane, click the **Environments** tab. For **Extent**, click the **Extent of a Layer** button and choose **Sevilla_Census_Sections**.
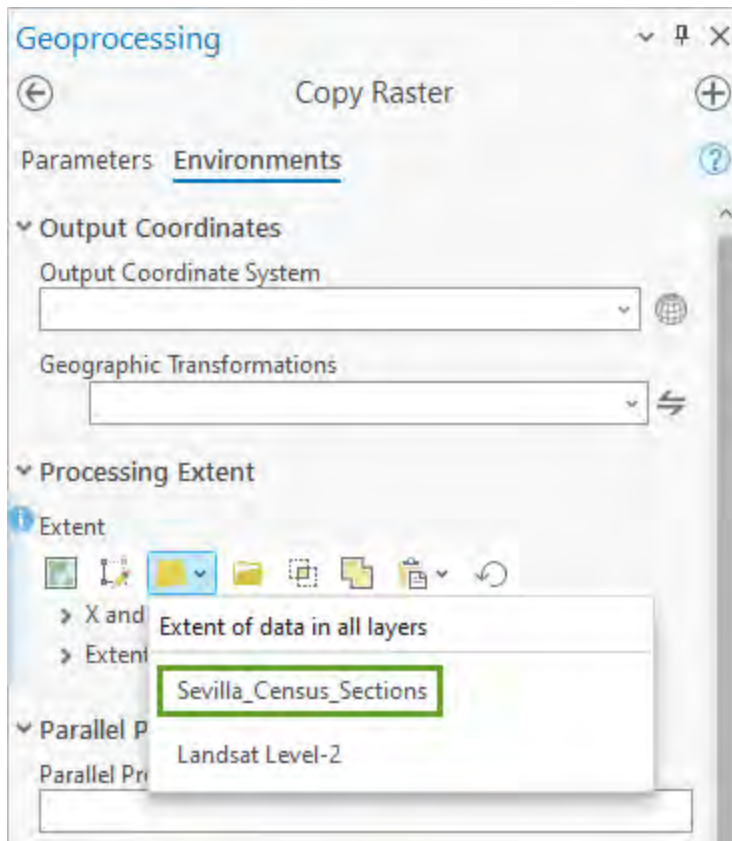
Setting a processing extent resolves the error condition you saw when you set the input raster.

11. Click **Run**.

When it's finished processing, the **Avg_SurfaceTemp_Sevilla.tif** raster is added to the **Contents** pane and the map.

Note:

You may receive a warning message after the tool completes, stating **WARNING 003485: Processing templates will not be saved to the output raster dataset because the input layer already has an active processing template.** This warning is expected because only the imagery data gets copied and not any of the service processing templates.

12. In the **Contents** pane, right-click **Landsat Level-2** and choose **Remove**.

Now that your area of interest's surface temperate raster is copied to a local file, you can use the **Zonal Statistics as Table** tool to summarize all the temperature values within each census polygon to determine the average value.

13. In the **Geoprocessing** pane, open the **Zonal Statistics as Table (Spatial Analyst Tools)** tool.

    The [Zonal Statistics as Table](#) tool calculates statistics of the raster cells within the zones of another dataset. In this case, you'll calculate the **Maximum** statistic to find the highest average temperature within each census section.

14. Enter the following parameters:
    - For **Input Raster or Feature Zone Data**, choose **Sevilla_Census_Sections**.
    - For **Zone Field**, choose **ID**.
    - For **Input Value Raster**, choose **Avg_SurfaceTemp_Sevilla.tif**.
    - For **Output Table**, type `Avg_SurfaceTemp_Sevilla`.
    - For **Statistics Type**, choose **Mean**.
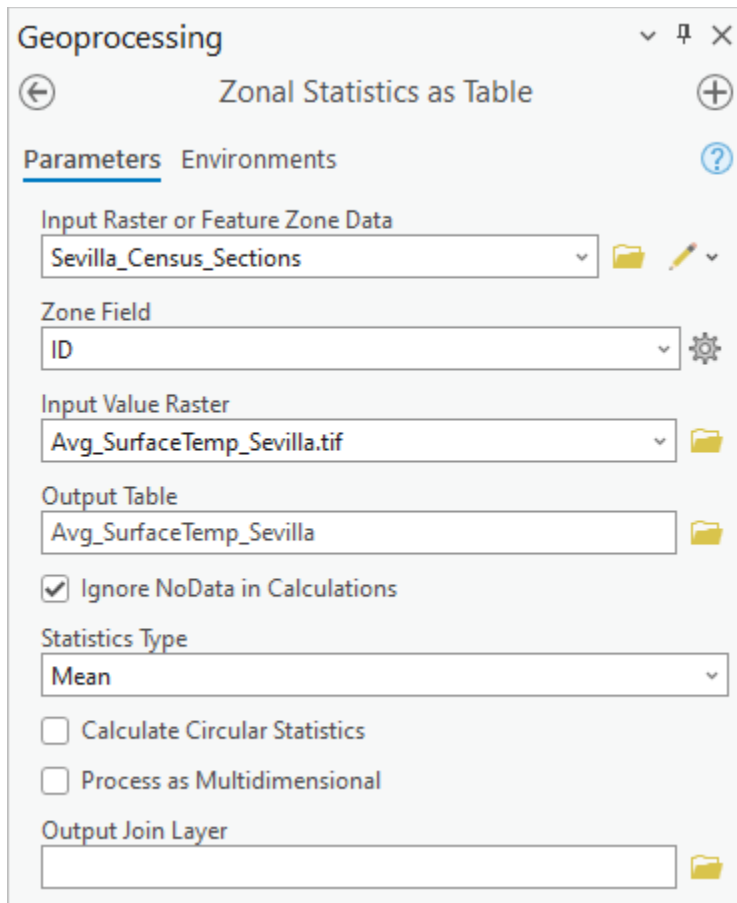
15. Click **Run**.

    The **Avg_SurfaceTemp_Sevilla** table is added to the **Contents** pane under **Standalone Tables**.
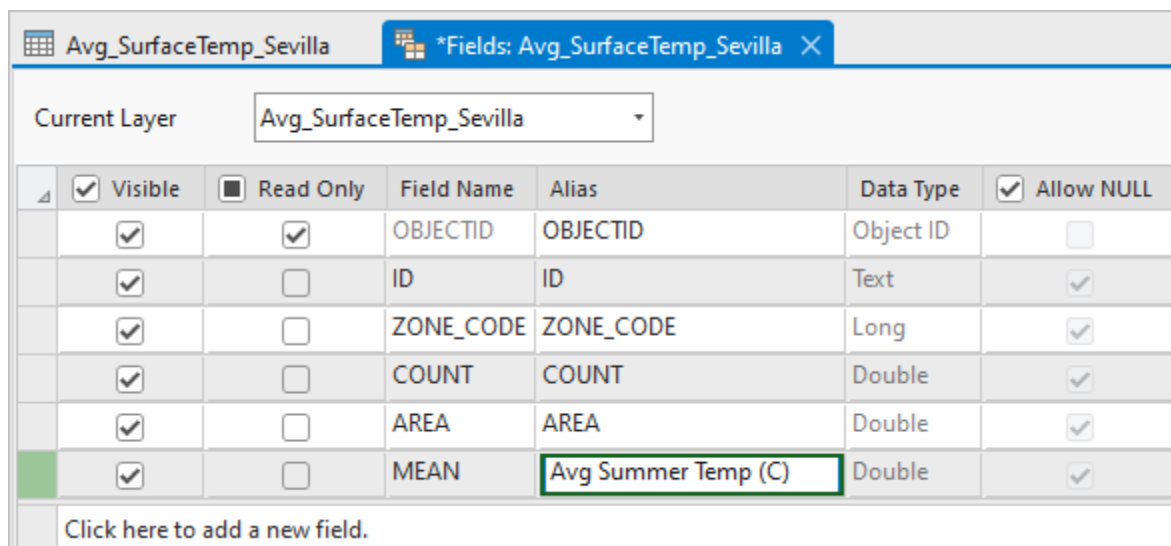
16. In the **Contents** pane, right-click the **Avg_SurfaceTemp_Sevilla** table and choose **Open**.

    The **MEAN** field shows the mean statistic. You'll rename this field for clarity.

17. On the ribbon, click the **Standalone Table** contextual tab. In the **Data Design** group, click **Fields**.
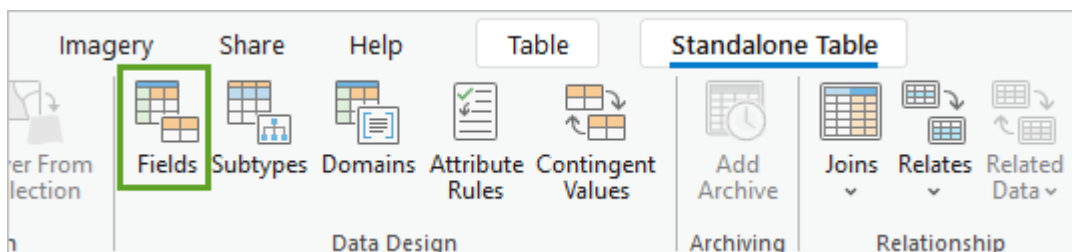
18. In the **Fields** table, in the **Alias** column, double-click **MEAN** to edit the record. Type `Avg Summer Temp (C)`.

	✓ Visible	■ Read Only	Field Name	Alias	Data Type	✓ Allow NULL
	✓	✓	OBJECTID	OBJECTID	Object ID	☐
	✓	☐	ID	ID	Text	✓
	✓	☐	ZONE_CODE	ZONE_CODE	Long	✓
	✓	☐	COUNT	COUNT	Double	✓
	✓	☐	AREA	AREA	Double	✓
	✓	☐	MEAN	Avg Summer Temp (C)	Double	✓

*Tabs: Avg_SurfaceTemp_Sevilla | *Fields: Avg_SurfaceTemp_Sevilla ✕*
Current Layer: Avg_SurfaceTemp_Sevilla
Click here to add a new field.

19. On the ribbon, in the **Manage Edits** group, click **Save** to save your edits to the table.
20. Close both tables and save the project.

You have now completed the workflow for preparing the first input in the heat resilience index. First, using ArcGIS Living Atlas data, you derived land surface temperature for an area of interest using processing templates on the Landsat Level-2 image service. Then, you adjusted properties on the service to filter the scenes by attribute and calculate average values across the filtered scenes. You also applied a spatial filter to limit the scenes to an area around the census boundaries. After exporting the imagery to your project, you calculated the average surface temperature within each census section.

Derive lack of tree canopy

The second input for the heat risk index is the lack of tree canopy. This input is derived from the European Space Agency WorldCover 2021 Land Cover imagery service in ArcGIS Living Atlas.

Tip:

Depending on your goals for the index, you might choose different to use different classification methods or different data. Because the goal of this index is to identify areas for tree planting campaigns, you're reclassifying the land cover layer to show where trees already are. If you were building the index to identify areas for other types of interventions,

such as removing impervious surface or creating rain gardens, you may choose to reclassify the land cover data to show how much green space existed by identifying the tree cover, shrubland, and grassland in each census section. Or, you might choose to use a measure of biomass and vegetation health such as the Normalized Difference Vegetation Index (NDVI) or the Soil Adjusted Vegetation Index (SAVI). These measures are included in the Landsat Level-2 service, and they can also be [calculated in ArcGIS Pro](#).

1. On the ribbon, click the **Map** tab and click the **Add Data** button. From the **Living Atlas** portal, add the **European Space Agency WorldCover 2021 Land Cover** layer owned by **esri_environment**.
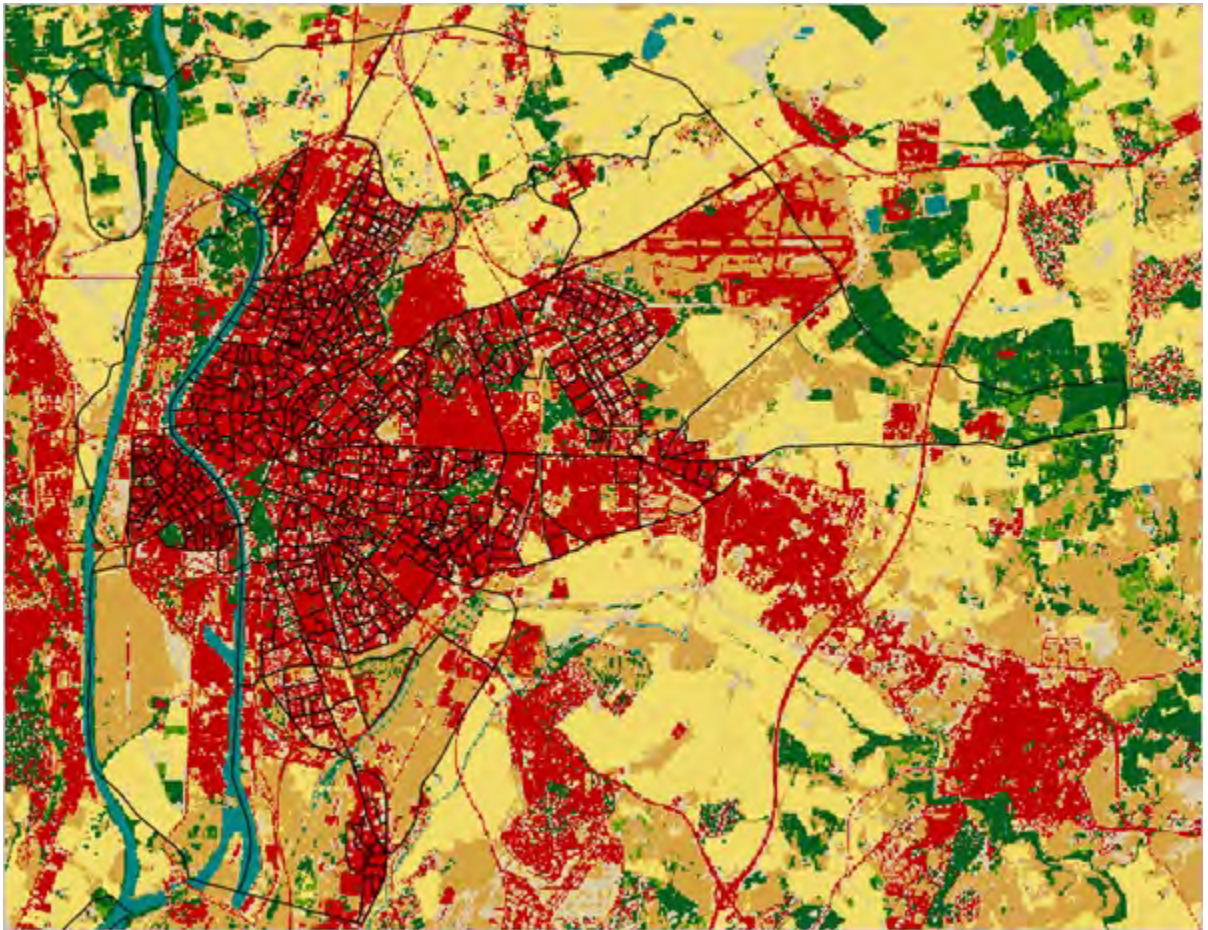
This layer is a global land cover dataset that has 11 land cover classes. Out of these classified pixels, you'll only need those showing tree cover. You'll use the **Reclassify** tool to isolate only the tree cover pixels.

2. In the **Geoprocessing** pane, open the **Reclassify (Spatial Analyst Tools)** tool.
3. For **Input raster**, choose **European Space Agency WorldCover 2021 Land Cover**. Ensure that **Reclass field** is set to **ClassName**.

4. In the **Reclassification** table, leave the **New** value for **Tree Cover** set to **1**. Change all
    the other **New** values except for **NODATA** to **0**.

5. For **Output raster**, click **Browse**. Browse to the **Sevilla Heat Resilience Index** project
    folder.
6. For **Name**, type `Tree_Canopy_Sevilla.tif`. Click **Save**.

    To process only the pixels relevant to your area of interest, you'll use the processing
    extent to clip the raster.

7. Click the **Environments** tab. Under **Processing Extent**, for **Extent**, click the **Extent of a
    Layer** button and choose **Sevilla_Census_Sections**.
8. Click **Run**.

    When the raster is finished processing, it is added to the **Contents** pane and drawn on
    the map.

9. In the **Contents** pane, right-click **European Space Agency WorldCover 2021 Land Cover** and choose **Remove**.

Note:

Your raster may have different symbology than the example image.

The **Tree_Canopy_Sevilla.tif** layer has two classes: tree cover and everything else. You can use this raster to calculate the lack of tree cover variable that will be an input to your index.

The lack of tree canopy is calculated using the formula `100 - Percent Tree Canopy`.

10. In the **Geoprocessing** pane, open the **Zonal Statistics as Table (Spatial Analyst Tools)** tool.

This time, you'll use the tool to summarize the number of tree cover pixels within each census polygon. The tool also counts the total number of pixels within each zone (polygon), so you can calculate the percentage of the polygon pixels covered with trees.

11. Enter the following parameters:
    o For **Input Raster or Feature Zone Data**, choose **Sevilla_Census_Sections**.
    o For **Zone Field**, choose **ID**.
    o For **Input Value Raster**, choose **Tree_Canopy_Sevilla.tif**.
    o For **Output Table**, type `Tree_Pixels`.
    o For **Statistics Type**, choose **Sum**.
12. Click **Run**

The **Tree_Pixels** table is added to the **Contents** pane under **Standalone Tables**.

13. Open the **Tree_Pixels** table.

The table contains two columns of interest: **COUNT**, which is the total number of pixels within each polygon zone, and **SUM**, which is the sum of tree cover pixels. You'll calculate the percent tree cover and percent lacking tree cover for each census polygon using the following formulas:

    o PCT_Tree_Cover = (Sum / Count) * 100
    o PCT_Lacking = 100 - PCT_Tree_Cover
14. In the attribute table, click **Calculate**.

OBJECTID *	ID	ZONE_CODE	COUNT	AREA	SUM
1	1	4109101001	1	1078	92768.097994	15
2	2	4109101002	2	896	77105.951579	93
3	3	4109101003	3	525	45179.268503	0
4	4	4109101004	4	1000	86055.74953	0
5	5	4109101005	5	879	75643.003837	0
6	6	4109101006	6	1266	108946.578905	0
7	7	4109101007	7	2065	177705.12278	31

15. In the **Calculate Field** tool, for **Field Name (Existing or New)**, type `Pct_Tree_Cover`. For **Field Type**, choose **Float (32-bit floating point)**.
16. Under **Expression**, for **Pct_Tree_Cover =**, build the expression **(!SUM! / !COUNT!) * 100** and click **OK**.

   The new field is added to the end of the attribute table.

17. Click **Calculate**. For **Field Name (Existing or New)**, type `Pct_Lacking`, and for **Field Type**, choose **Float (32-bit floating point)**.
18. For **Pct_Lacking =**, build the expression **100 - !Pct_Tree_Cover!** and click **OK**.

   The **Tree_Pixels** table has two new fields, **Pct_Tree_Cover** and **Pct_Lacking**. The **Pct_Lacking** attribute represents the percentage of the census section lacking tree cover and is the second input to the heat resilience index.

Selection:	Select By Attributes		Zoom To	Switch	Clear	Delete
ZONE_CODE	COUNT	AREA	SUM	Pct_Tree_Cover	Pct_Lacking	
1	1078	92768.097994	15	1.391466	98.60854	
2	896	77105.951579	93	10.37946	89.62054	
3	525	45179.268503	0	0	100	
4	1000	86055.74953	0	0	100	
5	879	75643.003837	0	0	100	

19. Close the **Tree_Pixels** table and save the project.

Calculate population density

The final input to the heat risk index is population density. This component of the index will allow you to prioritize action in populated areas where the most people may benefit from the intervention. You'll derive the population density input from Spanish census data in the **Sevilla_Census_Sections** layer.

Tip:

Depending on your goals for the index, consider adding additional demographic variables. For instructional purposes, in this tutorial you're only using a general measure of population density as a means of representing where tree planting campaigns might serve the most people. When building your index, this input likely will need to be more nuanced - consider adding demographic data to indicate where populations are most vulnerable to heat stress. [People who are more vulnerable to heat stress](#) include children and older adults,

people with strenuous outdoor jobs, people chronic health conditions, people with disabilities, and people experiencing homelessness.

When selecting demographic variables, it's best practice to work closely with stakeholders to identify their priorities and determine how to represent them in the index. Depending on your local priorities and how many indicators you choose to include, consider making a subindex to represent population and vulnerability in your index.

1. Open the attribute table for the **Sevilla_Census_Sections** layer.

    The layer contains attributes for both total population and area in square kilometers. You'll calculate a new field by dividing population by area.

2. In the attribute table, for **Field**, click **Calculate**. In the **Calculate Field** window, for **Field Name (Existing or New)**, type PopDensity, and for the **Field Type**, choose **Float (32-bit floating point)**.

3. Under **Expression**, for **PopDensity =**, copy and paste the expression !TOTPOP_CY! / !AREA!.

4. Click **OK**.

   The **PopDensity** field is added to the table. The three derived inputs are now ready to be combined into the heat risk index and symbolized on a map. You'll first transfer all the inputs to the **Sevilla_Census_Sections** layer for processing.

5. In the **Geoprocessing** pane, open the **Join Field** tool.
6. Enter the following parameters:
   - For **Input Table**, choose **Sevilla_Census_Sections**.
   - For **Input Join Field**, choose **ID**.
   - For **Join Table**, choose **Avg_SurfaceTemp_Sevilla**.
   - For **Join Table Field**, choose **ID**.
   - For **Transfer Fields**, choose **Avg Summer Temp (C)**.

7. Click **Run**.

   When the tool finishes running, the **Avg Summer Temp (C)** field is added to the **Sevilla_Census_Sections** table.

8. In the **Join Field** pane, change **Join Table** to **Tree_Pixels** and change **Avg Summer Temp (C)** to **Pct_Lacking**. Click **Run**.

   Now, all three inputs are in the same table.

9. Close the table. Save the project.

You've prepared the variables you'll use to create your heat index. You're ready to create the index.

Create a heat risk index

With all the index inputs prepared, you'll create your index. There are many ways to create, combine, and interpret indices based on the purpose; in this tutorial, you'll use the **Calculate Composite Index** tool. This tool incorporates some data preprocessing and data combination steps to help you choose an index method that fits your data. If you're working with different study areas or variables, adjust your index methods accordingly using the [Calculate Composite Index tool documentation](#) and [best practices guide](#).

Understand index inputs

To create an effective index, you'll need to choose what methods to use to preprocess and combine the data. Preprocessing steps in the Calculate Composite Index tool ensure that variables are compatible and can be combined in an index. In order to choose these steps, you first need to understand the distribution of input variables. You can also choose to deal with inconsistencies like skewness and missing values at this stage. To understand the variables, you'll use the Data Engineering view, which has tools for exploring, visualizing, and cleaning your data.

1. In the **Contents** pane,
   uncheck **Tree_Canopy_Sevilla.tif** and **Avg_SurfaceTemp_Sevilla.tif** to turn them off.
2. Right-click **Sevilla_Census_Sections** and choose **Data Engineering**.

   The **Data Engineering** view opens. You'll use the **Data Engineering** tools to view histograms of each of your input variables, symbolize them on the map, and calculate summary statistics to understand the values.

3. In the **Fields** panel, click **PopDensity**. Press and hold the Shift key, then click **Pct_Lacking** to select the three index inputs you've prepared.
4. Drag the three selected fields into the **Statistics** panel.
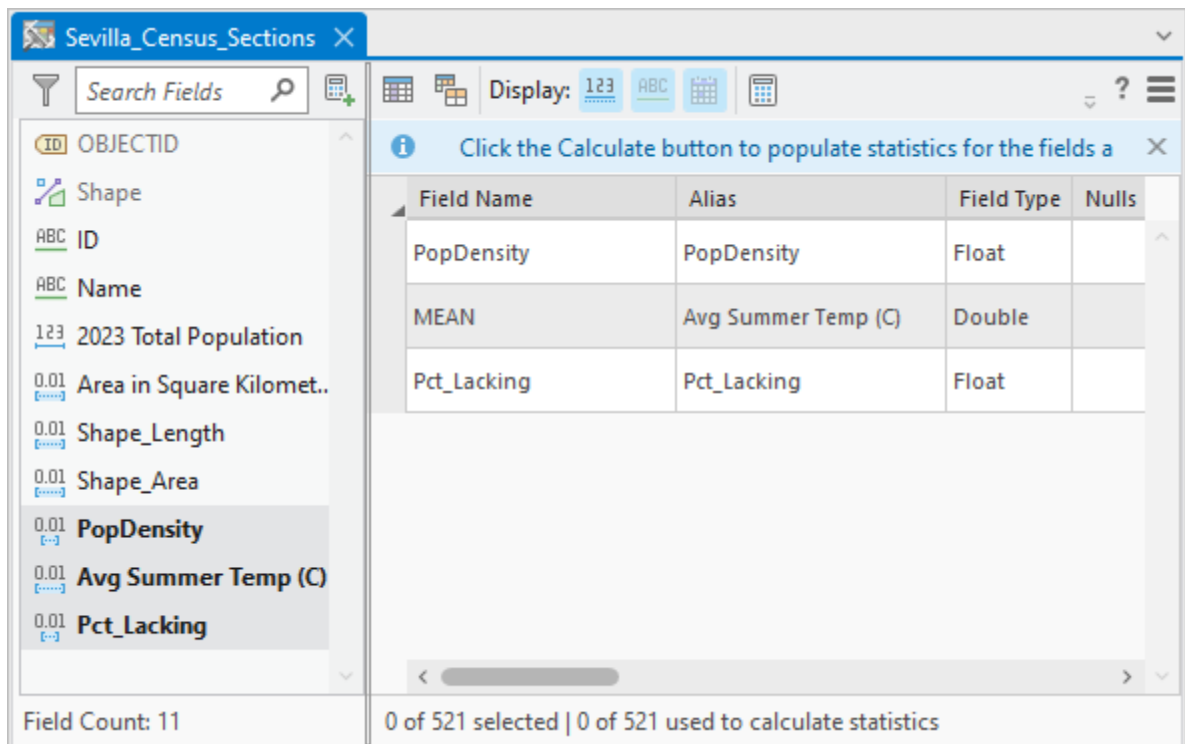
The three fields are added. Next, you'll calculate statistics.

5. In the **Statistics** panel, on the ribbon, click **Calculate**.

    Statistics are calculated for each input, including mean, median, outliers, and skewness. Next, you'll map the inputs and create histograms to understand their distribution.

6. In the **Fields** panel, point to the **PopDensity** field and click **Update Symbology**.
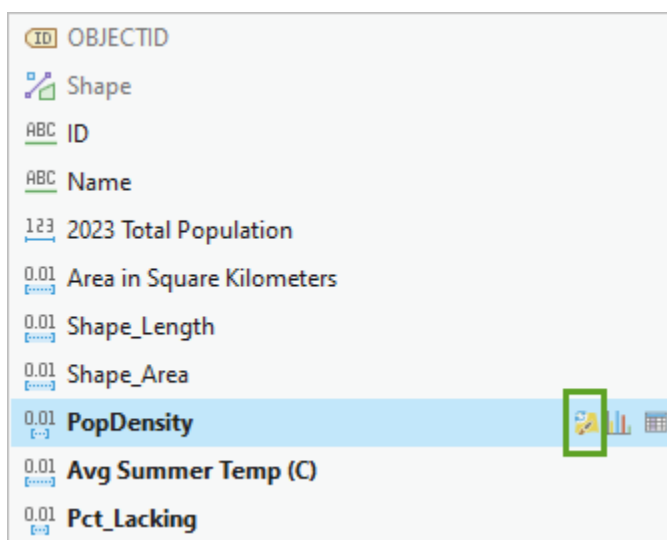
The map updates to display the census sections based on their population densities. There are higher density values in smaller census areas near the center of the city, while larger census areas and areas on the outskirts of the city have lower densities.
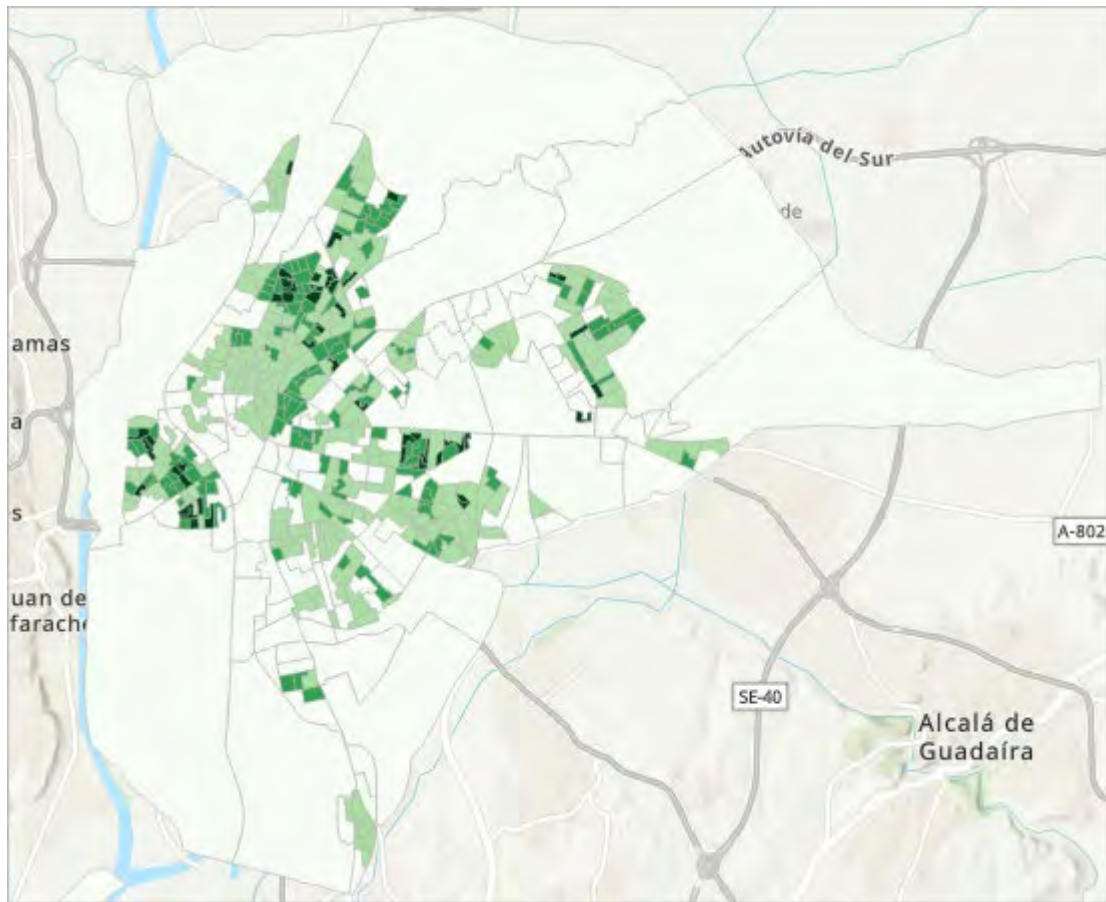
7. In the **Statistics** panel, for the **PopDensity** field, right-click the chart preview and choose **Open histogram**.

The PopDensity histogram appears. The histogram shows the distribution of the data, which has a slight positive skew.

8. Close the histogram. In the **Data Engineering** view, scroll until you see the **Skewness** statistic.

The skewness statistic for the PopDensity field is 0.823. Values less than -0.5 or greater than 0.5 are generally considered skewed. Having high skewness in a variable can change its impact on the index results. While the **Calculate Composite Index** tool has preprocessing methods available that can deal with skewness, such as scaling, these methods are applied to every variable used as an input, not just skewed variables. Using the **Data Engineering** tools to deal with variables ahead of using the composite index tool gives you more control over individual variables. You'll use the **Transform Field** tool to change the **PopDensity** variable to a more normal distribution.

9. For the **PopDensity** field, right-click the **Skewness** statistic and choose **Transform Field**.

10. In the **Transform Field** tool, make sure the **Transformation Method** is **Box-Cox**.

    You'll accept the rest of the defaults. The **Shift** parameter can be used if any values in the input table are negative. The **Power** parameter can be used to specify the value of the power. If no value is provided, the best approximation of a normal distribution curve will be used and displayed in the geoprocessing messages.

11. In the **Transform Field** tool, click **Ok**.

Transform Field	? ✕

    ℹ This tool modifies the Input Table   ✕

    Input Table
    Sevilla_Census_Sections

    Transformation Method
    Box-Cox

    Power

    Shift

    ℹ If negative or zero values exist, a shift is added.

    Field to Transform
    Input Field ⌄ ⚙   Output Field Name

    PopDensity ⌄   PopDensity_BOX_COX

    ⌄

    Apply   OK

    When the tool finishes running, the new field is added to the **Sevilla_Census_Sections** table.

12. In the **Data Engineering** view, in the **Fields** panel, drag **PopDensity_BOX_COX** into the **Statistics** panel and click **Calculate**.
13. Use the histogram and statistics to compare the **PopDensity** and **PopDensity_BOX_COX** fields.

    The Skewness statistic for **PopDensity_BOX_COX** is -0.033, which is closer to a normal distribution. Now you'll repeat the process to map and transform the **PCT_Lacking** field, which has a strong negative skew.

14. In the **Fields** panel, point to the **PCT_Lacking** field and click **Update Symbology**.
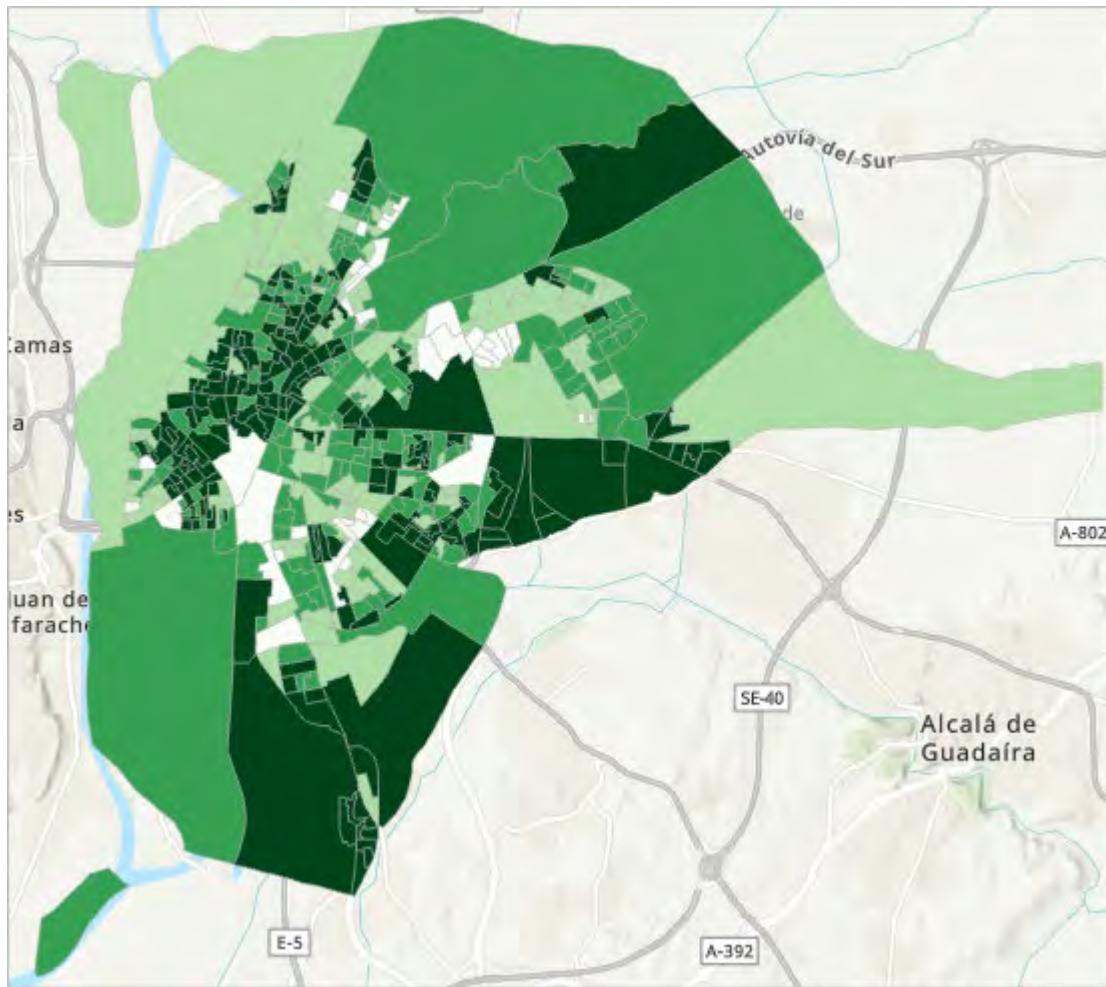
The map updates to show census sections by percent of tree cover. Darker shades of green show areas with a higher percent of land lacking tree cover. Many of the smaller census sections in the downtown area have little tree cover. There are also several large outlying census sections that have little tree cover. To understand these patterns in greater detail, you can change the basemap to view satellite imagery.

15. On the ribbon, on the **Map** tab, click **Basemap** and choose **Imagery Hybrid**.

    The imagery shows that many of the large outlying census sections contain industrial parks, warehouse districts, and agricultural fields with few trees. Because there are many census sections with no tree cover, the variable is highly skewed. You'll use the **Transform Field** tool again to change the distribution into something closer to a normal distribution.

16. For the **PCT_Lacking** attribute, right-click the chart preview and choose **Transform Field**.

17. In the **Transform Field** tool, make sure the **Transformation Method** is **Box-Cox** and click **Ok**.
18. In the **Data Engineering** view, in the **Fields** panel, drag **Pct_Lacking_BOX_COX** into the **Statistics** panel and click **Calculate**.
19. Use the histogram and statistics to compare the **Pct_Lacking** and **Pct_Lacking_BOX_COX** fields.

    Because the skew was stronger on this field, the transformation resulted in a new Skewness parameter of -0.233, which still lies within the -0.5 to 0.5 range that you're using as a rough approximation of normal distribution.

    The final field to map is the **Avg Summer Temp (C)** field.

20. In the **Fields** panel, point to the **Avg Summer Temp (C)** field and click **Update Symbology**.
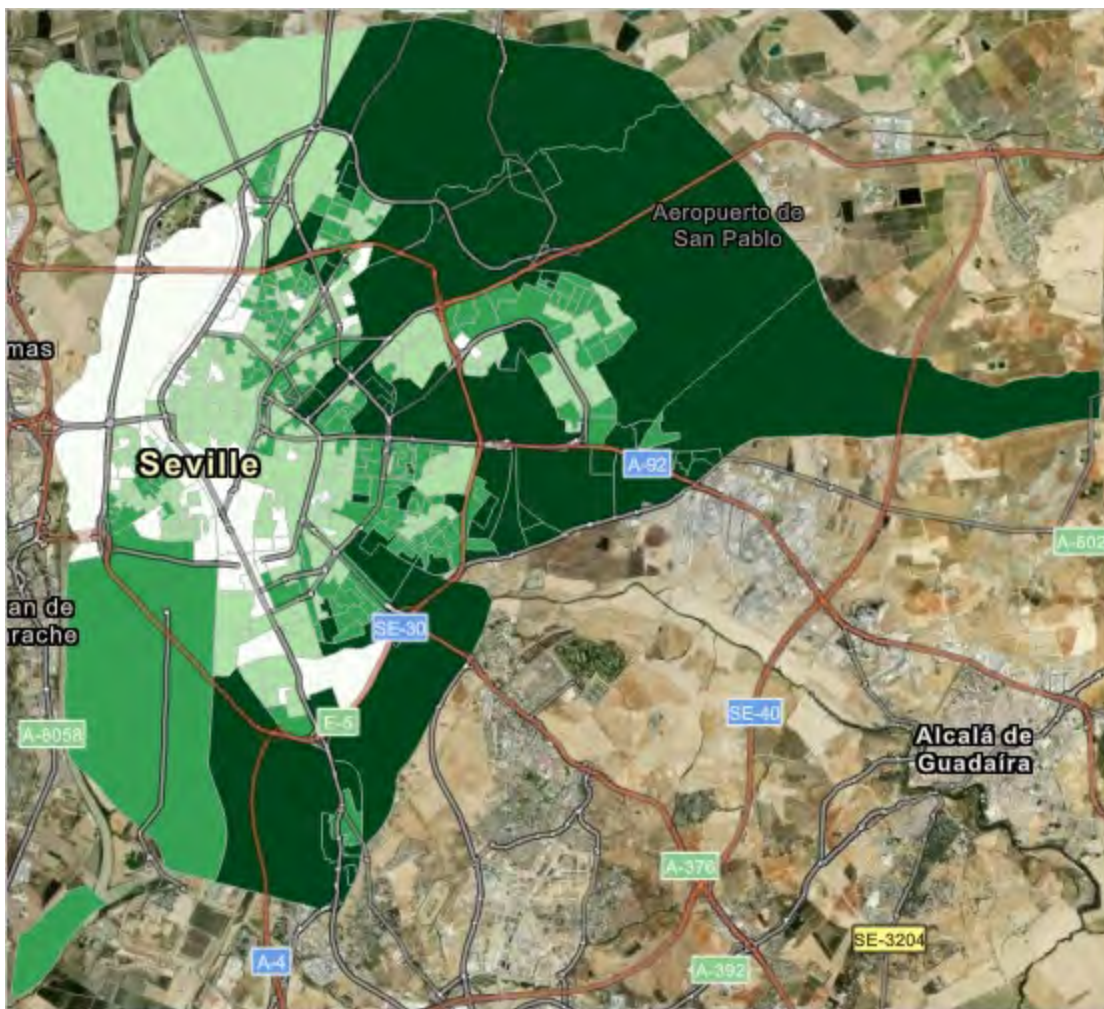
The final attribute, **Avg Summer Temp (C)** draws on the map. Interestingly, the large outlying census sections also appear to have higher temperatures. This could be because of several reasons, such as an artifact of data processing or the size of the sections compared to the smaller downtown sections. For example, high temperatures in the industrial park and warehouse districts may drive up the average value for the entire section. In the **Statistics** pane, you can see that the minimum and maximum average temperatures are 40.91 and 50.84 degrees Celsius, respectively.

Now that you have a better understanding of the index inputs, you can move on to choosing preprocessing steps and index methods.

Select index methods

Next, you'll choose your preprocessing steps. Preprocessing in the **Calculate Composite Index** tool focuses on reversing variables to make sure they're consistent in direction, and on scaling variables to make sure they're consistent in range and unit. If you're working with different study areas or variables, refer to the [Calculate Composite Index tool documentation](#) and [best practices guide](#) to choose appropriate preprocessing steps and combination methods.

1. In the **Geoprocessing** pane, search for and open the **Calculate Composite Index** tool.

   While there are many ways to create indices, you'll use this tool because it combines multiple data processing steps into a single tool and creates a series of charts to help you validate the results of the index tool.

   First, you'll add the three inputs you've prepared and set the preprocessing parameters you want to use.

2. For **Input Table**, choose **Sevilla_Census_Sections**. For **Output Features or Table**, type `Sevilla_HRI_MeanofScaled`.

   Tip:

   It may be beneficial to test several preprocessing and index combination methods. To help differentiate them later, choose an output name that represents the parameters used.

3. For **Input Variables**, click the **Add Many** button.
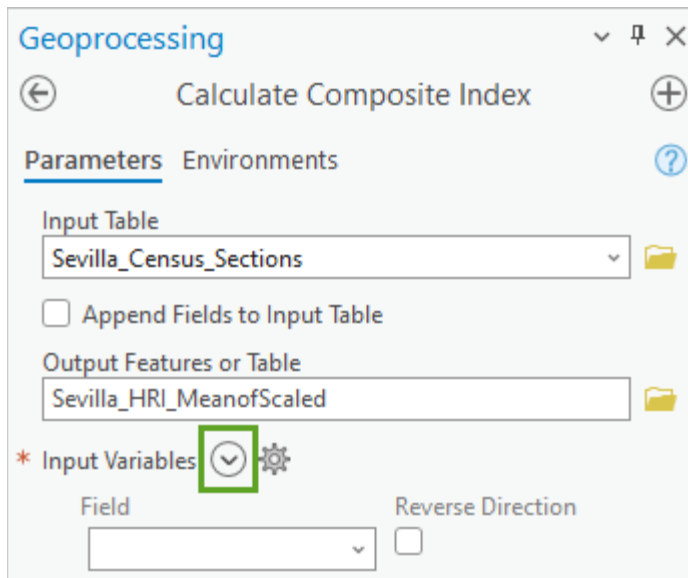
4. Choose **Avg Summer Temp**, **PopDensity_BOX_COX**, and **Pct_Lacking_BOX_COX**. Click **Add**.
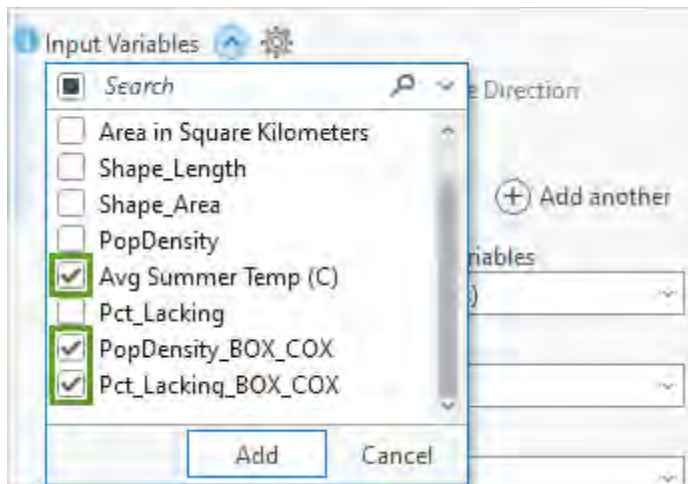
Note:

If your **Input Variables** are listed using field names instead of aliases, click the **Field list settings** button and choose **Show Field Aliases**.

Each input has a check box to reverse direction. Depending on how you prepared your input variables, you may need to reverse a variable's direction. To decide whether to reverse a variable, you need to make sure that all high values represent a common outcome for the index. In this case, you prepared all your variables so that high values indicate the census section's benefit from tree planting would be greater,

and low values indicate that the census section's benefit would be lower. Because the direction of the values are compatible, you don't have to reverse any of them.

Next, you'll choose how to scale the inputs. Scaling is the method used to standardize all the inputs to a common range. Because you're working with variables with different units and scales, you need to standardize them before you can combine them. For example, it's hard to compare the impacts of a change of one degree Celsius on a census section versus a change of one percent tree coverage. Scaling these variables will map the values to a common range, such as 0 to 1.

Scaling methods depend on your data and your goals for the index. For example, if you're working with very skewed data or the ranks of each variable in the dataset are more important than their actual values, you may choose to use the mean of percentiles, which standardizes values by translating them into percentiles between 0 and 1. Or, if you have a critical value, such as a median housing price, and want your index to identify areas above and below that critical value, you might choose to use the Flag by threshold custom option.

5. For **Preset Method to Scale and Combine Variables**, choose **Combine values (Mean of scaled values)**.

    This preset option sets the **Method to Scale Input Variables** to **Minimum-maximum** and the **Method to Combine Scaled Variables** to **Mean**. First, input variables are rescaled between 0 and 1, then combined using the mean of the rescaled input variables as the index. This method is appropriate because the scaling process will consider the magnitude of difference between values in the input data, quantifying how much better or worse the census section is in relation to the rest of the values.

    Because it uses the minimum and maximum of the dataset to rescale, this method often isn't appropriate for skewed data. If you hadn't transformed the PopDensity and PctLacking attributes in earlier steps, you'd want to consider a method like mean of percentiles, which preserves the rank of the data but not the magnitude. Methods that preserve rank are useful for creating indices showing *where* conditions are better or worse, but won't quantify *how much* better or worse.

6. For **Method to Scale Input Variables**, confirm that **Minimum-maximum** is chosen.
7. For **Method to Combine Scaled Variables**, confirm that **Mean** is chosen.

    The next parameter sets the weight of each variable. Variables can be weighted to represent the relative importance of each factor as it contributes to the index.

8. Expand the **Variable Weights** section.

    By default, all weights are set to 1, meaning each variable is equally weighted. For this index, you want to focus on planting trees in places where they can directly benefit people, so you'll weight the **PopDensity_BOX_COX** variable more than the other two.

    The **Output Settings** parameters allow you to choose what to name the index attribute field. You can also choose additional symbolized layers for the tool to generate.

9. Under **Weights**, for **PopDensity_BOX_COX**, set the **Weight** to 2.

    Next, you'll choose settings for the index output. First, you can choose minimum and maximum values for the index range, such as a scale of 1 to 10. This range is optional, but can make values easier to interpret. Then, you can choose additional output layers to give you more ways to assess the results.

10. Expand **Output Settings**. For **Output Index Name**, type HRI.

11. For **Output Index Minimum and Maximum Values**, set the **Minimum** to **1** and the **Maximum** to **10**.
12. Under **Output Settings**, for **Additional Classified Outputs**, check the box next to **Standard deviation**.

13. Click **Run**.

When the tool is finished, the **Sevilla_HRI_MeanofScaled** group layer is added to the **Contents** pane. The group layer contains three layers, one showing the index values using an unclassified color ramp, another showing the index values as percentiles, and the third showing the index values as standard deviation classes. The **HRI** layer also contains several charts.

Map and interpret the index

Now that you've created an index, you'll explore and interpret the results. Using the charts and outputs that the composite index tool creates, you can determine whether the index works for your purposes, or if you should test additional preprocessing steps and index methods. Once you're comfortable with the results of your index, you'll style it in a way that's easier for others to interpret. The index values you've been looking at are meaningful to you, but likely won't be to others without additional context.

Additionally, taking action based on this index will require more local input and knowledge. For example, what is the budget for the tree planting intervention? What kind of permitting is required, and do communities want trees planted in their neighborhood? Without this kind of direct understanding, it's potentially misleading to produce maps that show

interpretations of your index. Instead, you'll use the standard deviation output you produced to classify the census areas as receiving greatest benefit, moderate benefit, and least benefit.

1. In the **Contents** pane, under **HRI**, right-click **Distribution of Index** and choose **Open**.
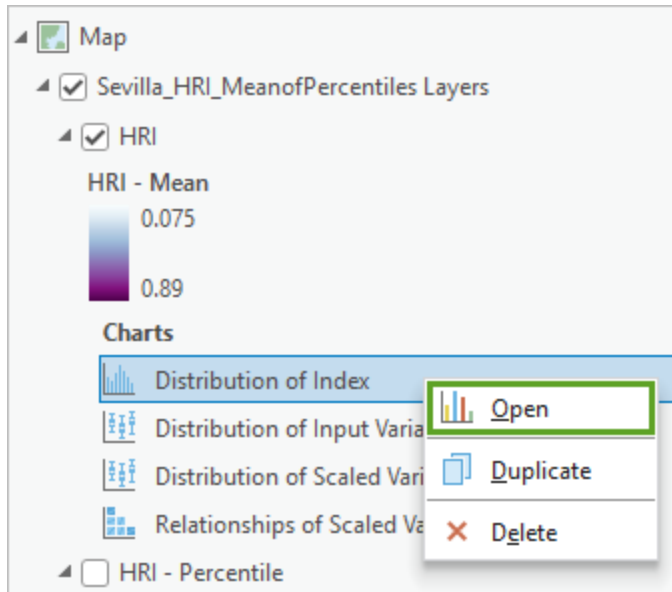
The high index values can be interpreted as showing areas that would benefit most from tree planting as a heat resilience intervention. Likewise, the low index values can be interpreted as benefiting least from tree planting as an intervention. This doesn't mean that these areas don't have high summer temperatures or need resilience measures implemented, but that interventions other than tree planting might be considered.

2. In the chart pane, click the bar representing the highest index values to select them on the map.
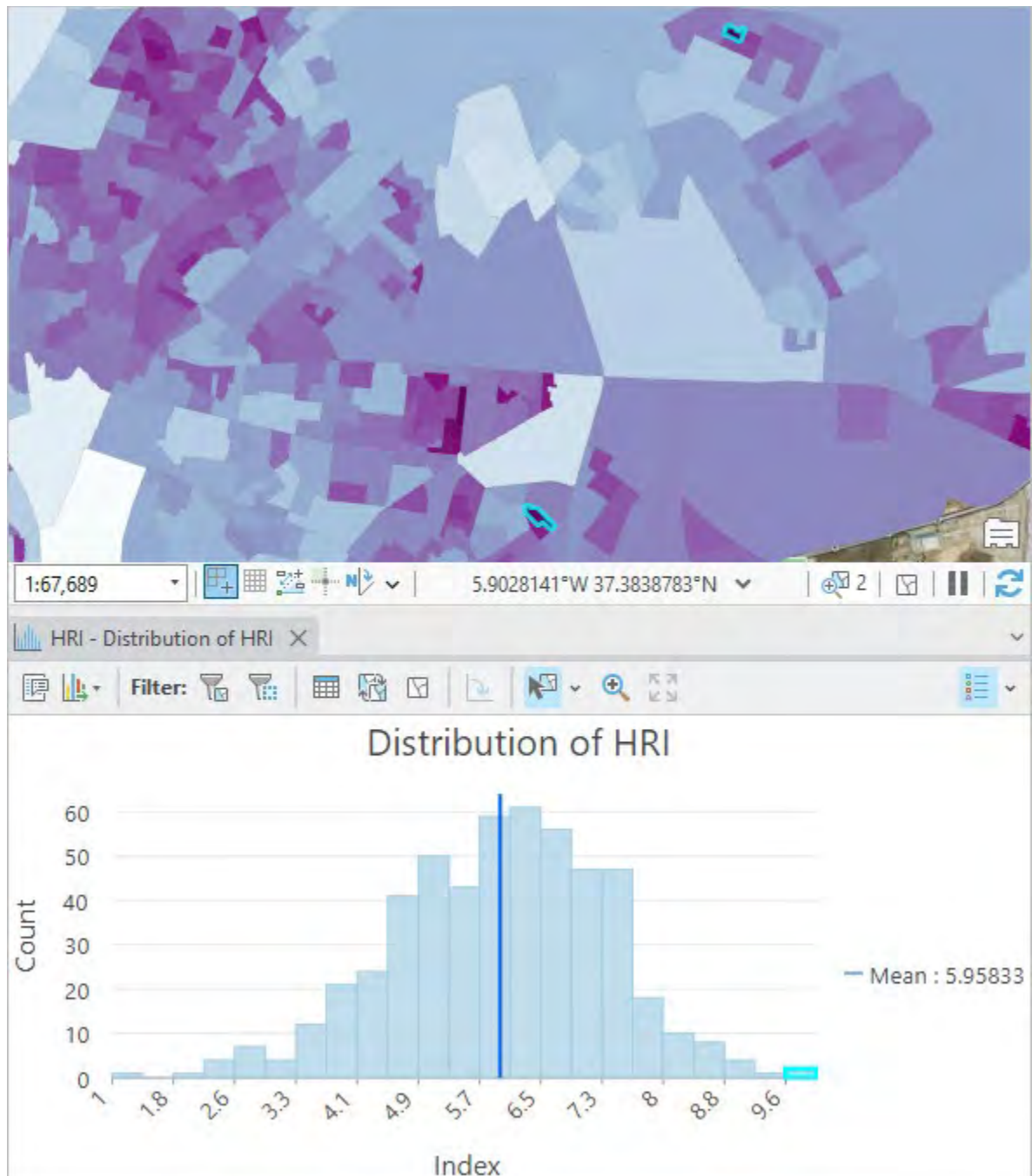
3. Click one of the selected census sections on the map to open an informational pop-up.
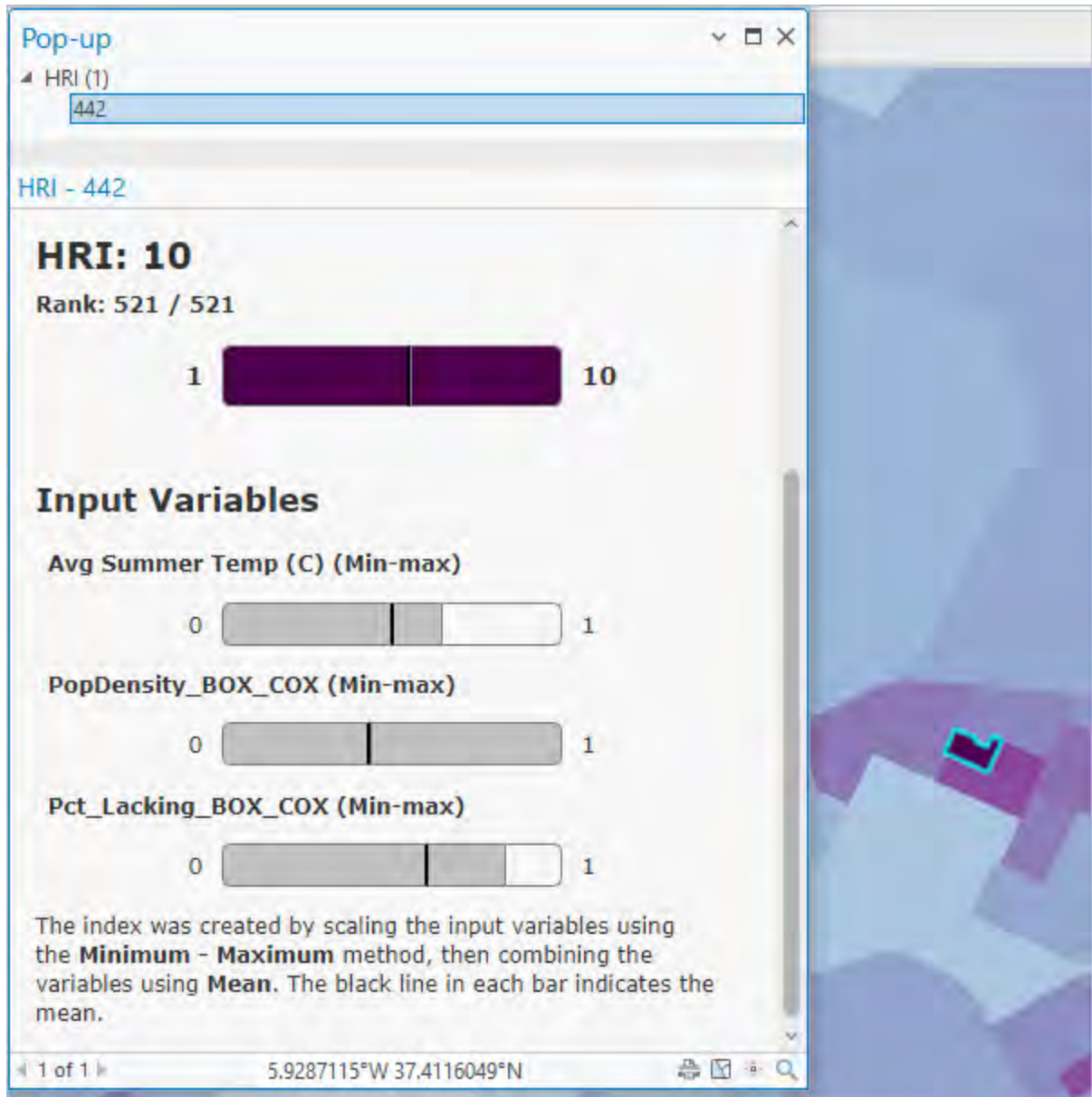
The pop-up shows the overall index score for the census section as well as the scaled values of the variables.

4. Click around the map and use the histogram to explore census sections with high and low index values and understand why they've been ranked that way.

This index output layer and the accompanying chart are helpful to use if the index values themselves are meaningful to you. For example, if you wanted to target your tree planting campaign in census sections that scored 8 or higher on the index, this histogram is a good starting point.

5. In the **Contents** pane, turn off the **HRI** layer and turn on the **HRI - Percentile** layer. Use the pop-ups and **Distribution of HRI - Mean (Percentile)** chart to explore the percentiles output.

   This output is useful if you care less about the index score and more about the ranking of the section. For example, if you wanted to target your tree planting campaign in census sections that scored in the 95th percentile, then you might use this output.

   In this case, because you're making a general index without local input or stakeholder feedback, you'll use the final output, the standard deviation output, to classify the census areas as receiving greatest benefit, moderate benefit, and least benefit. This map should be viewed as a midpoint in your analysis. It can be used to prompt discussion and gather perspective from stakeholders in order to better refine the variables, weights, and methods used.

6. In the **Contents** pane, under **Sevilla_HRI_Percentiles_GeomMean Layers**, turn off the **HRI - Percentile** layer and turn on the **HRI - Standard Deviation Classes** layer. Open the **Counts by HRI – Mean (Standard deviation classes)** chart.
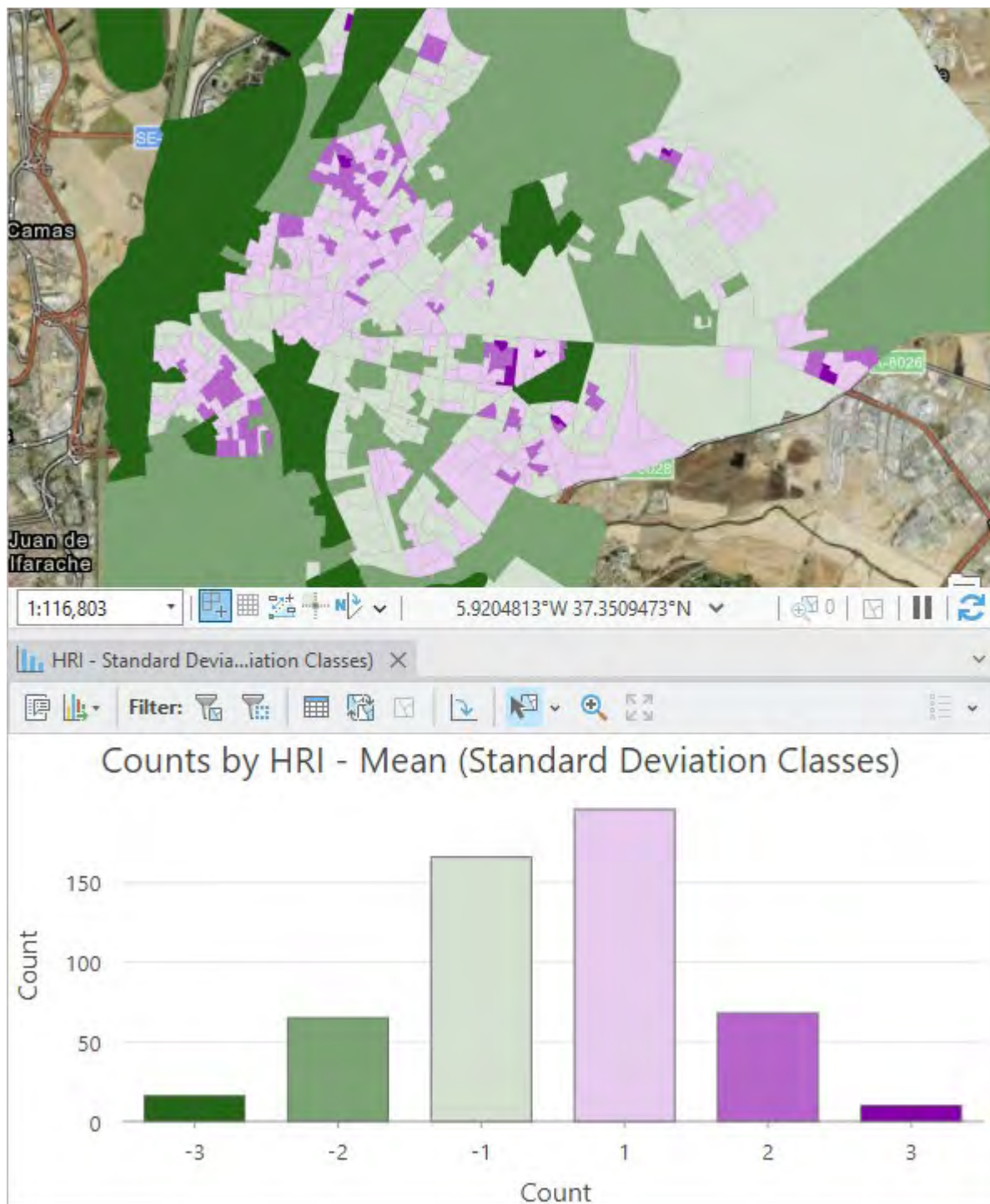
This layer shows the index data symbolized by standard deviation, with the highest index values three standard deviations away from the mean.

7. Close the chart. In the **Contents** pane, right-click **HRI - Standard Deviation Classes** and choose **Symbology**.

The layer is currently symbolized with six classes.

8. For **Primary symbology**, click **Unique Values** and choose **Graduated Colors**.
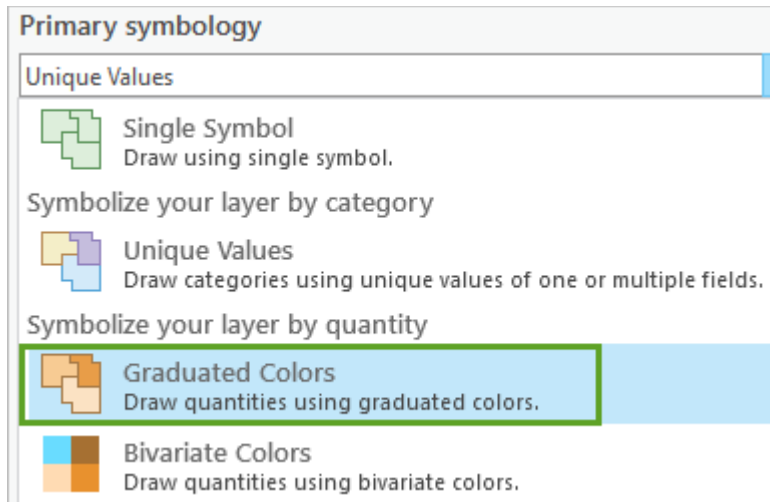
9. For **Field**, choose **HRI – Mean (Standard Deviation Classes)**.
10. For **Classes**, choose **3**.

   These three classes will represent the census areas receiving greatest benefit, moderate benefit, and least benefit.

11. Click **Color scheme** and check **Show all**. Choose the **Brown-Green (3 classes)** color ramp.
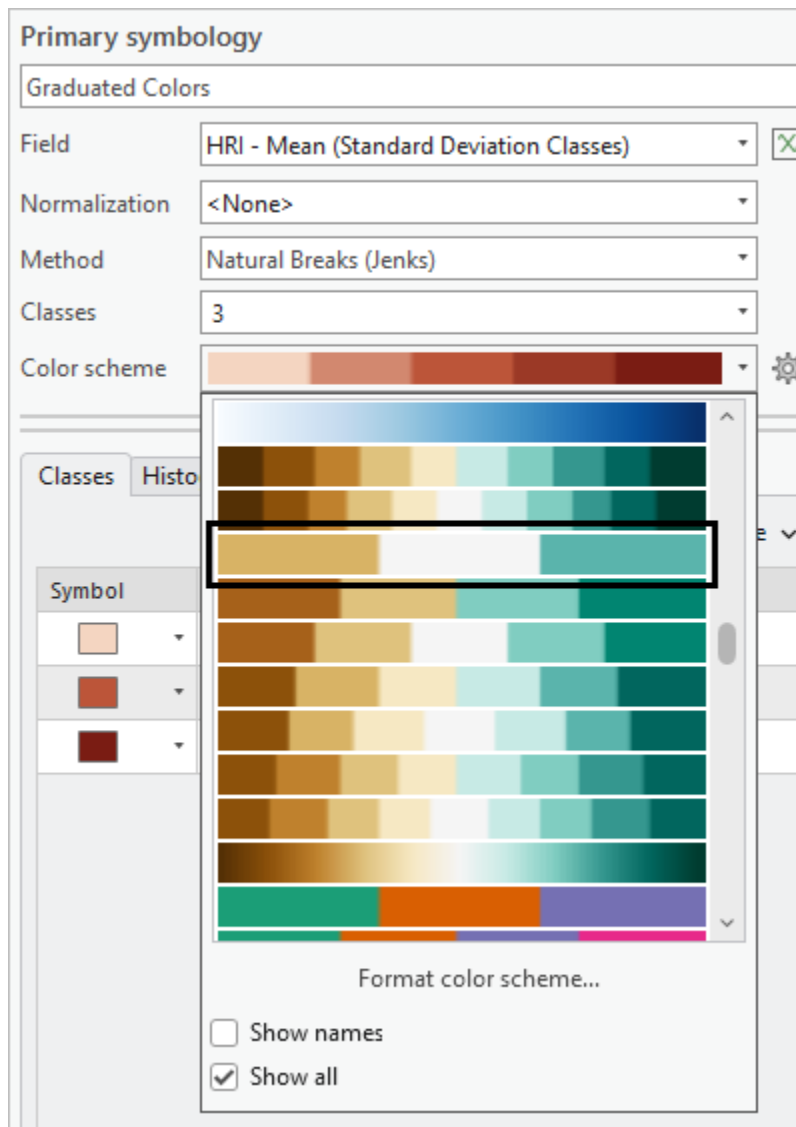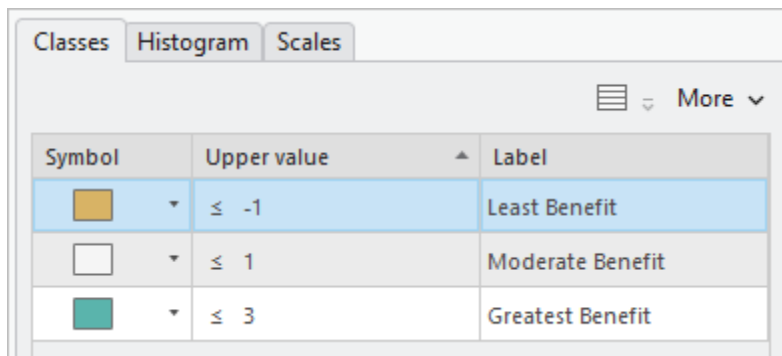
Next, you'll decide which census areas belong in the three categories you've decided to use. This decision is as subjective as the index creation process and can be adjusted to meet local needs and guidelines.

12. In the **Classes** tab, for the first class, confirm that **Upper value** is set to ≤ −1. For **Label**, type `Least Benefit`.
13. For the second class, confirm that **Upper value** is set to ≤ 1. For **Label**, type `Moderate Benefit`.

14. For the third class, confirm that **Upper value** is set to ≤ **3**. For **Label**, type `Greatest Benefit`.

Depending on your preferred methods for sharing and communicating the results of this index, you could now publish it as a web map or create a map layout to share a printed version. Either way, this map should be viewed as a midpoint, a way to gather community input and perspective before taking action on any tree planting.

15. Save the project.

In this tutorial, you created a heat risk index showing where tree planting would be most beneficial at mitigating extreme heat based on population density, lack of existing tree canopy, and average summer surface temperatures.

The resilience index methodology can be replicated for other areas of interest around the world and for different climate hazards, and can include index inputs specific to your community, such as at-risk populations. When creating your own index, make sure to use data preprocessing and index creation methods specific to your data. For more guidance on the Calculate Composite Index tool, use the tool's documentation page and the Creating Composite Indices Using ArcGIS: Best Practices technical paper.

You can find more tutorials in the tutorial gallery.

Acknowledgements

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- World Topographic Map sources: Esri, HERE, Garmin, FAO, NOAA, USGS, OpenStreetMap contributors, and the GIS User Community
- World Hillshade layer sources: Esri, Airbus DS, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap, and the GIS user community

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Create a social equity index to improve public health

https://learn.arcgis.com/en/projects/create-a-social-equity-index-to-improve-public-health/

Use the Social Equity Analysis solution to apply an equity lens and prioritize schools to host a parent health education program.

Organizations worldwide are using geographic information systems (GIS) to address social and racial equity issues. The ArcGIS Social Equity Analysis solution provides spatial decision-making tools for governments and organizations to tackle systemic inequities. Developed in collaboration with Race Forward's Government Alliance on Race and Equity (GARE), the tool helps visualize complex decisions and advance racial equity.

In this tutorial, you are a GIS analyst tasked with improving respiratory health in your community. By creating a social equity index map for Lucas County, Ohio, you can identify areas that require increased funding for respiratory health programs. The index ranks census block groups based on indicators identified with local residents, enabling decision makers to allocate resources where they will have the greatest impact.

Your organization has implemented equitable practices, including community engagement and a community advisory board. Through engagements with schools, parents, physicians, neighborhood groups, and a public health commission, key indicators related to air quality and childhood health have been identified. The social equity index will inform planning and prioritization for historically underinvested families and communities.

This tutorial was last tested on March 15, 2024, using ArcGIS Pro 3.2. If you're using a different version of ArcGIS Pro, you may encounter different functionality and results.

View final result

Requirements

- ArcGIS Pro (see options for software access)
- 84.83 credits (optional)

Outline

	20 minutes

Deploy the solution and add data Deploy the Social Equity Analysis solution and add census, demographic, and health outcome data to your project.	
Create a composite equity index Create a composite index, making revisions based on community feedback.	25 minutes
Evaluate the equity index and propose program locations Create charts to understand the index results for different racial and ethnic groups. Use site selection to prioritize locations for a health program.	20 minutes

Deploy the solution and add data

ArcGIS Solutions provides industry-specific configurations for ArcGIS that are designed to meet key requirements and support common workflows in your organization. Each solution includes one or more applications, surveys, maps, feature layers, and ArcGIS Pro projects that can be configured to meet your needs.

You will begin by deploying the **Social Equity Analysis** solution from ArcGIS Online and opening the ArcGIS Pro project from the solution.

Download Social Equity Analysis solution

First, you'll sign in to your ArcGIS account and search for the **Social Equity Analysis** solution.

1. Sign in to your ArcGIS organizational account.

    Note:

    If you don't have an organizational account, see options for software access.

2. At the top of the screen, click the **App** button and choose **Solutions** in the app launcher.
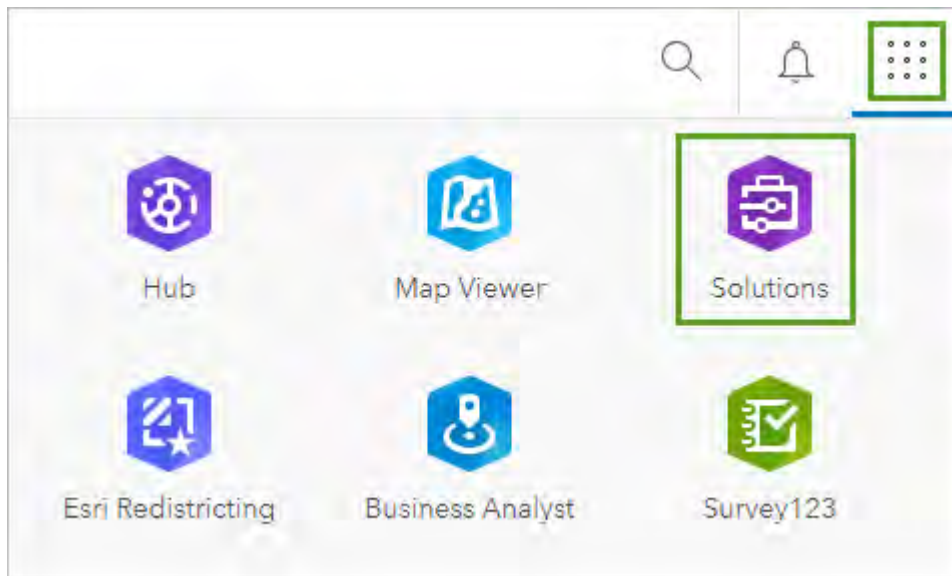
The ArcGIS Solutions page appears.

3. In the search bar, type `social equity`.

4. Click the **Social Equity Analysis** solution card.

Social Equity Analysis

Social Equity Analysis can be used to understand community characteristics, analyze community conditions and actions, and generate an equity analysis index.
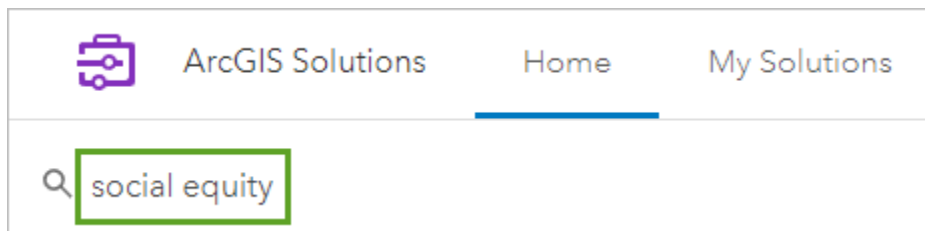
The **Social Equity Analysis** window appears.

5. In the **Social Equity Analysis** window, review the slides that outline the solution workflow.

   The **Social Equity Analysis** solution has four key components:

   o Evaluate community conditions and actions—This component involves mapping community conditions, creating composite indices, and identifying demographic patterns, and perform site selection based on equity goals.

   o Measure progress over time—This component includes an Interactive Legend app to share the community characteristics index with the general public.

   o Increase transparency and public trust—This component includes an ArcGIS Hub site template to share about progress on racial equity initiatives or programs with the public and stakeholders. It also includes a Survey123 survey for the public to provide general feedback.

   This tutorial will focus on the first component: evaluate community conditions and actions.

6. When you are finished reviewing the slides, click the **Deploy now** button.

The **My Solutions** page appears, and the **Social Equity Analysis** solution deploys.

Next, you will download the desktop application template of the solution to open in ArcGIS Pro.

7. Point to the **Social Equity Analysis** solution and click **Open**.
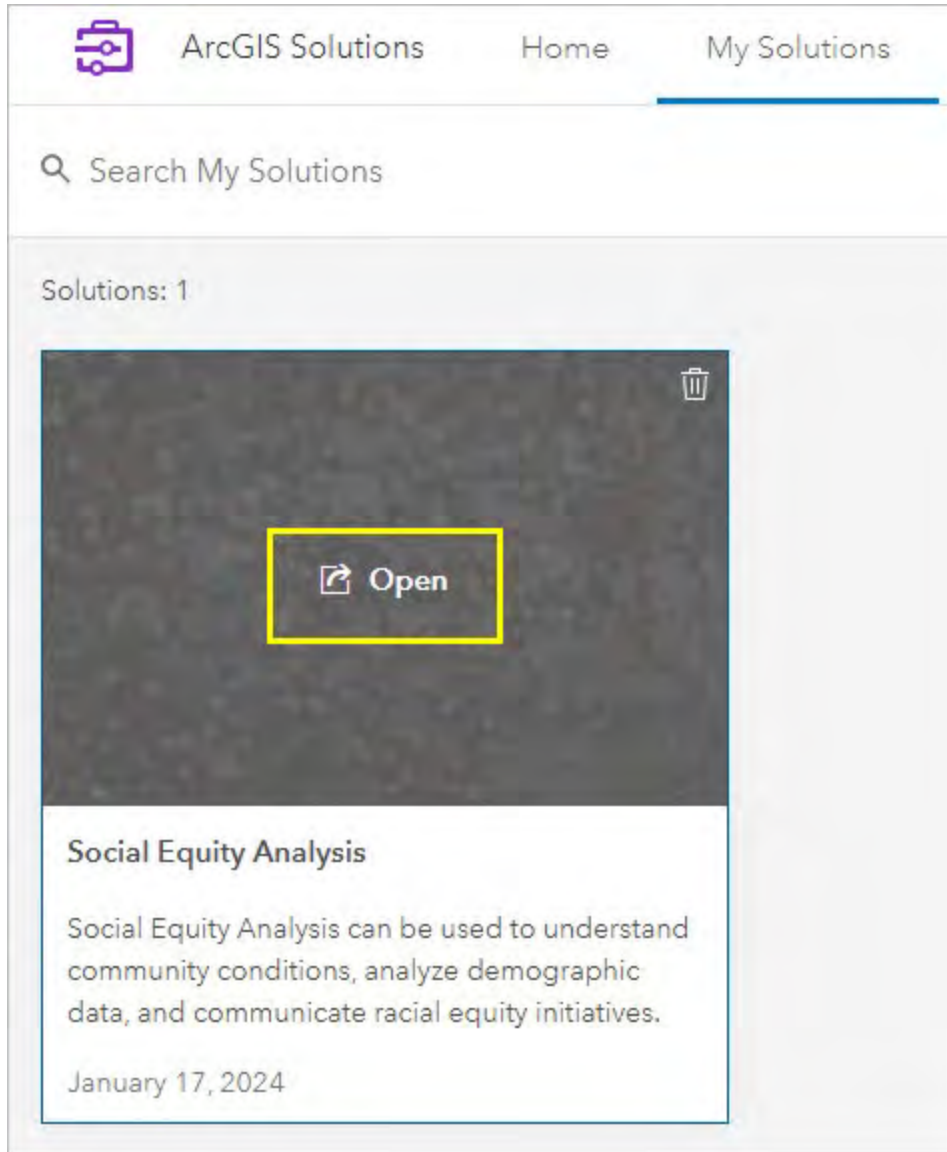
8. Scroll down to the **Solution Contents** section and click **SocialEquityAnalysis**.

The **SocialEquityAnalysis** item page appears. This is the item page for the **Social Equity Analysis** solution ArcGIS Pro package.

9. Click **Download**.
10. Unzip and open the contents of **SocialEquityAnalysis.zip**. Double-click the **SocialEquityAnalysis** project file to open the project in ArcGIS Pro.

The ArcGIS Pro project opens to a blank map.

Add census block groups data

Next, you will add the layers you'll need to create a social equity index map, such as census tracts, school locations, demographic data, and health outcome data.

1. In the ArcGIS Pro project, in the **Catalog** pane, expand **Tasks** and double-click **Social Equity Analysis**.
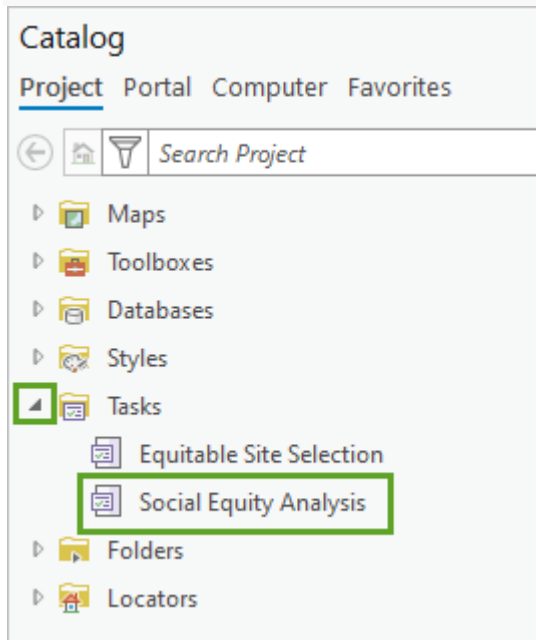
   The **Tasks** pane appears.

   The **Task** pane contains a guided process for using tools in ArcGIS Pro that includes identifying a focus area of interest, an evaluation of which communities are disproportionately impacted or burdened by it, and where to target interventions to address disproportionate impacts or outcomes. You'll start by preparing the data on assets and outcomes.

2. In the **Tasks** pane, expand **Identify Study Area, Create and Prepare Variables**, and double-click **Identify study area and enrich with demographic variables**.
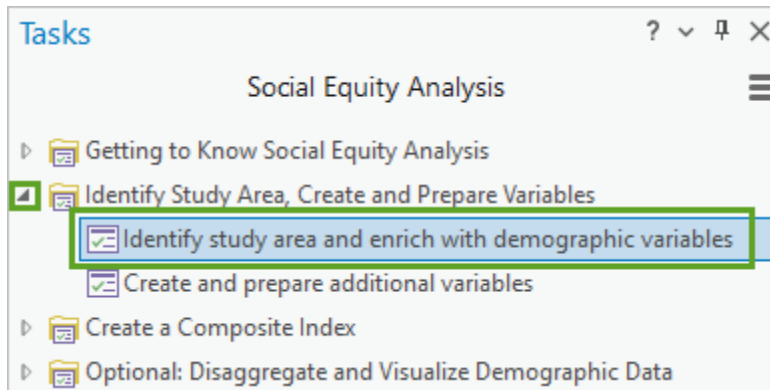
The **Add Data** window appears.

3. In the **Add Data** window, under **Portal**, click **Living Atlas**. On the search bar, type `usa census block group boundaries` and press Enter.
4. Click **USA Census Block Group Boundaries**, owned by **esri_dm**.
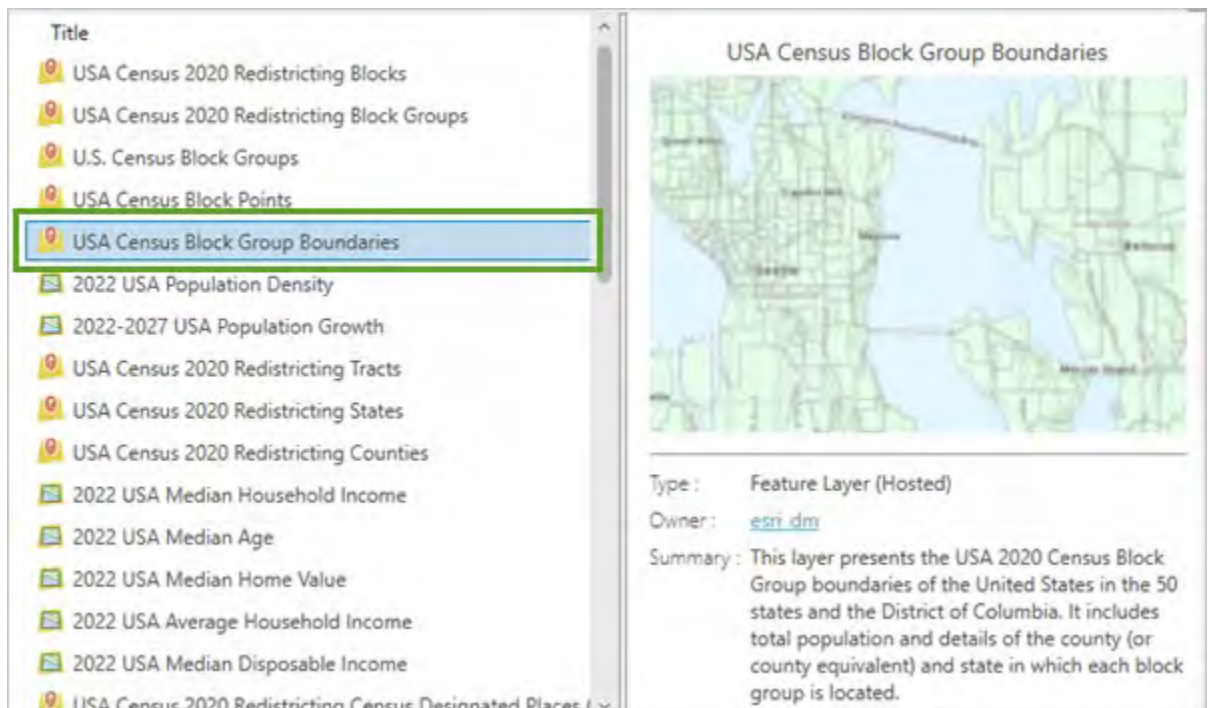
5. Click **OK**.

The **USA Census BlockGroups** layer is added to your map.

6. In the **Tasks** pane, click **Next Step**.

The next step in the **Task** pane instructs you to zoom into your reporting area. You will zoom in closer to Toledo, Ohio.

7. On the ribbon, on the **Map** tab, in the **Inquiry** group, click **Locate**.

The **Locate** pane appears.

8. In the **Locate** pane, on the search bar, type `Toledo, OH` and press Enter.
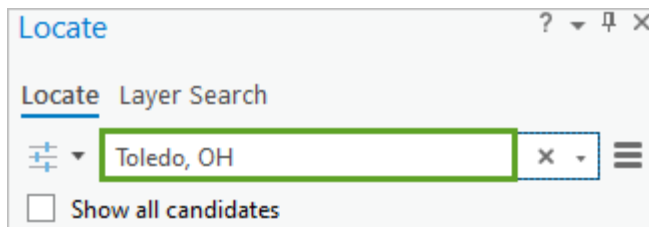
The map zooms to Toledo, Ohio.
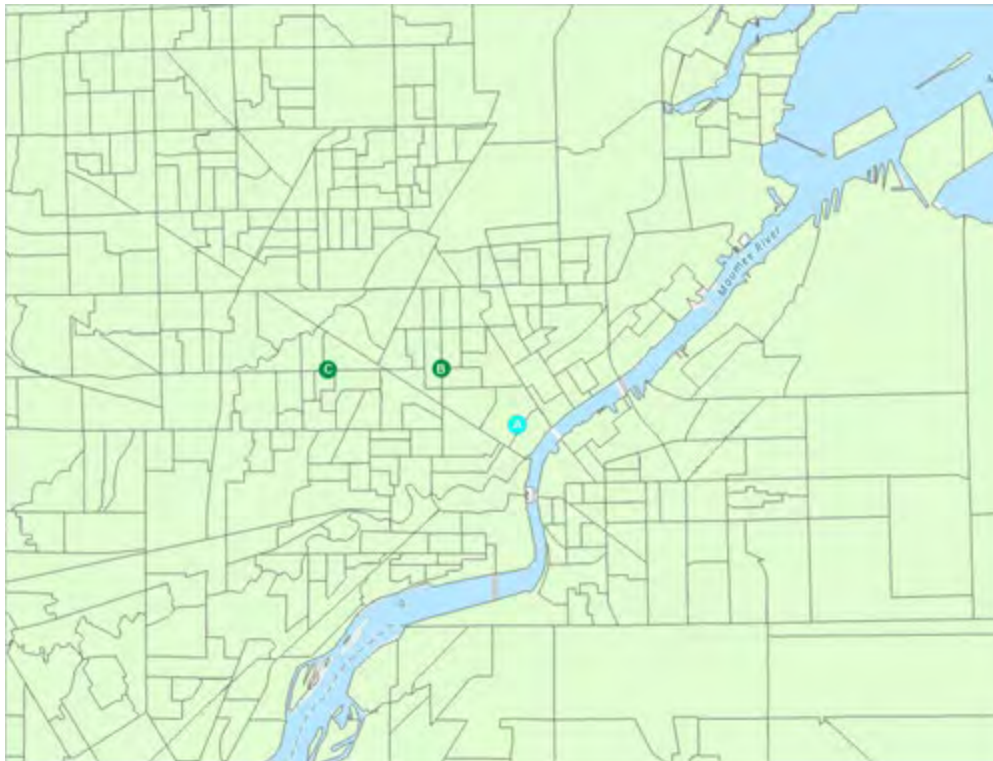
9. Close the **Locate** pane. On the map, zoom out until you see most of the state of Ohio.

   You notice that the **USA Census BlockGroups** layer includes data for the entire United States, but you are only interested in analyzing data in Lucas County, the county which contains the city of Toledo. You will create a definition query to limit the visible census block groups to only the ones within Lucas County. Before you can create the definition query expression for the layer, you will find out the unique identifying number for the county.

10. On the ribbon, on the **Map** tab, in the **Selection** group, click **Select**.
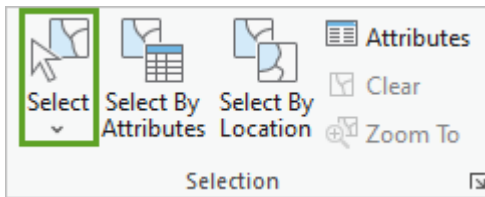
11. On the map, zoom in to Toledo, and click a census tract near the label for the city of Toledo.

   The selected tract highlights in blue, indicating that it is selected.

12. Close the **Locate** pane.
13. At the bottom of the **Tasks** pane, click the **Contents** tab.
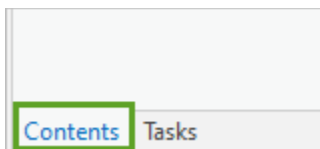
14. In the **Contents** pane, right-click the **USA Census BlockGroups** layer and click **Attribute Table**.

15. In the attribute table, click **Show Selected Records**.
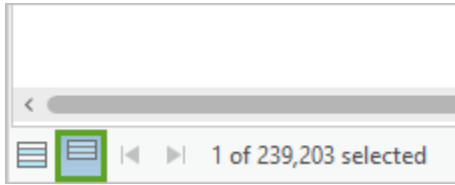
The table shows only the row for the tract you selected.

16. Locate the **STCOFIPS** attribute and make note of the value.

FIPS stands for Federal Information Processing System. The STCO in STCOFIPS stands for state and county. FIPS codes are numbers that uniquely identify geographic areas. The first two digits in the STCOFIPS code represent the state code the county is located in, and the remaining three digits represents a specific county code.

The STCOFIPS for Lucas County, Ohio, is **39095**. You will use this information to create a definition query for the layer so that it only shows data for Lucas County.

17. In the **Contents** pane, double-click the **USA Census BlockGroups** layer.

The **Layer Properties** window appears.

18. In the **Layer Properties** window, click **Definition Query** and click **New definition query**.

19. Build the expression **Where STCOFIPS is equal to 39095**.
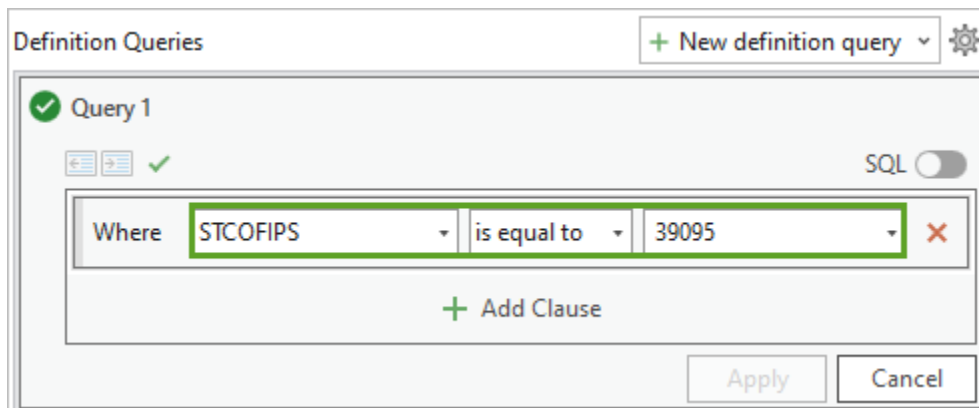
20. Click **Apply** and click **OK**.
21. On the ribbon, on the **Map** tab, in the **Selection** group, click **Clear**.

The layer now shows only the census block groups in Lucas County, Ohio.

Enrich the block groups with demographic data

Now that you have the census block group divisions on your map, you will add demographic information for each of the block groups.

1. Return to the **Tasks** pane and click **Next Step** twice.
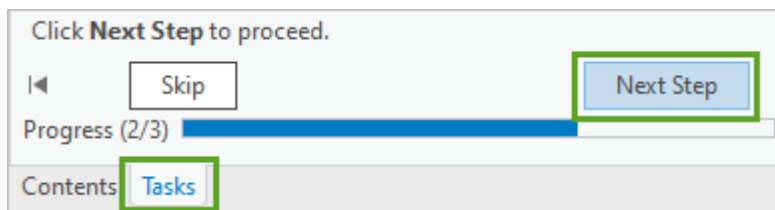
The **Enrich with Demographic Data** pane appears.

The next task uses the **Enrich** tool to add key focus demographic data. This tool consumes credits.

Note:

Geocoding will consume credits. Credits are the currency used across ArcGIS and are consumed for specific transactions and types of storage, such as storing features, performing analytics, and using premium content. Matching addresses when

publishing a spreadsheet as a hosted feature layer using ArcGIS Geocoding service consumes credits. Learn more [about credits](#).

To learn how many remaining credits are in your ArcGIS Online account, at the top of the page, click your username, and click **My settings**. On the **My settings** page, click **Credits** to see how many remaining credits are in your account.

2. In the **Enrich with Demographic Data** tool pane, for **Input Features**, choose **USA Census BlockGroups**, for **Output Features**, type LucasCounty_Enrich.
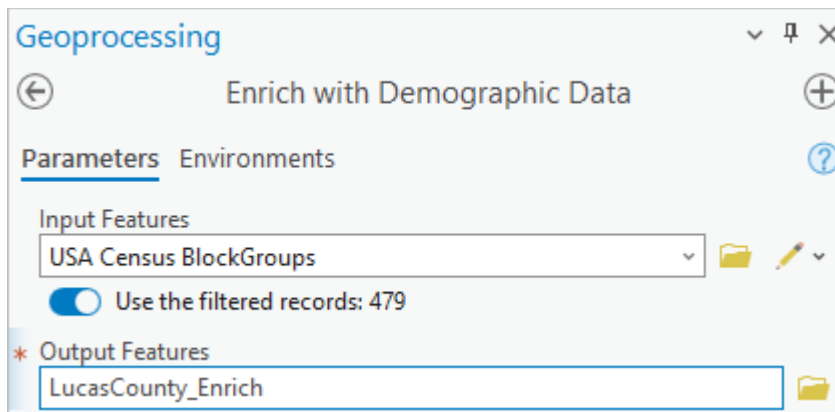
Next, you will choose the variables in the **Enrich with Demographic Data** pane that were determined through your outreach and collaboration efforts with the community.

In any given equity analysis workflow, variables or indicators selected to create an equity index will vary based on the specific community and particular intervention you are seeking to address. As mentioned earlier, the most crucial step in the Racial Equity workflow is to engage communities impacted by the inequity and who will be receiving the support of the intervention. Such members of the community must be included in the process of determining these indicators before creating the index.

3. Under **Variables**, click the remove button for the following preconfigured indicators.

Note:
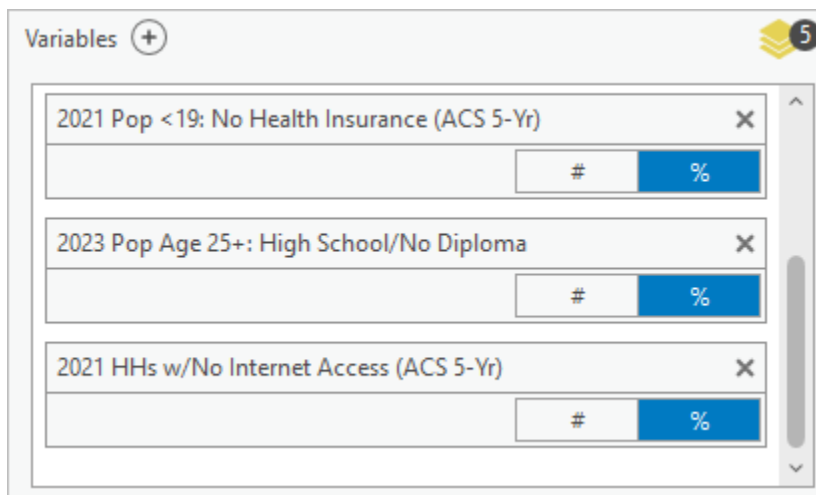
If you accidentally remove a variable, you can reset the list of variables by clicking the **Back to previous step** button at the bottom of the **Tasks** pane. Then click **Skip** to return to the **Enrich with Demographic Data to reporting areas** step. The **Enrich with Demographic Data** pane appears with the preconfigured list of variables.

   o 2023 Total Population

- o 2021 Population Age 65+ (ACS 5-Yr)
- o 2023 Unemployed Population 16+
- o 2023 Per Capita Income
- o 2023 Median Household Income
- o 2021 Pop Ratio Inc/Poverty: 2.00+ (ACS 5-Yr)
- o 2021 Pop 19-34: No Health Insurance (ACS 5-Yr)
- o 2021 Pop 35-64: No Health Insurance (ACS 5-Yr)
- o 2021 HHs w/ Food Stamps/SNAP (ACS 5-Yr)
- o 2021 Owner HHs with 0 Vehicles (ACS 5-Yr)
- o 2021 Renter HH with 0 Vehicles (ACS 5-Yr)
- o 2023 Owner Occupied HUs

Five variables remain with **percent** selected:

- o 2023 Child Population
- o 2021 HHs: Inc Below Poverty Level (ACS 5-Yr)
- o 2021 Pop <19: No Health Insurance (ACS 5-Yr)
- o 2023 Pop Age 25+: High School/ No Diploma
- o 2021 HHs w No Internet Access (ACS 5-Yr)

Note:

Running this tool will require 23.95 credits.

If you do not have sufficient credits to complete this step, you can use the provided the LucasCounty_Enrich_Learn_2024 layer to continue the tutorial. To add

this layer, on the ribbon, on the **Map** tab, in the **Layer** group, click **Add Data**. Search for `LucasCounty_Enrich_Learn owner: Learn_ArcGIS`, and in the list of results, choose the **LucasCounty_Enrich_Learn 2024** layer. Skip this step to continue the tutorial.

4. In the **Enrich with Demographic Data** pane, click **Run**.
5. In the **Contents** pane, right-click **LucasCounty_Enrich** and click **Attribute Table**.
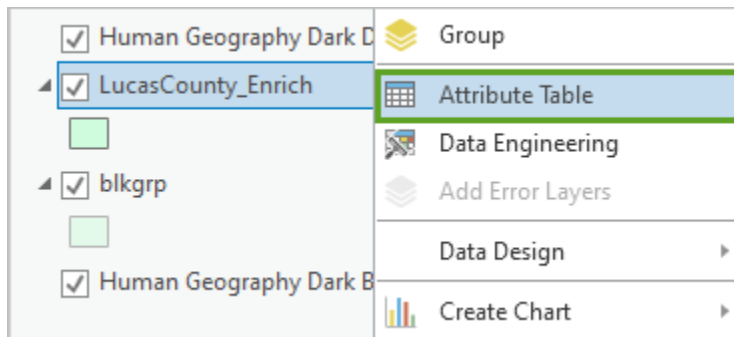
The indicators you selected have been added to the block group layer.

6. Close the table.

Add and filter health outcome data

Next, you want to add health outcome data so you can better understand the current rate of asthma in the county. You will add a layer owned by the Centers of Disease Control and Prevention that includes data on asthma prevalence at the census tract level.

1. On the ribbon, on the **Map** tab, in the **Layer** group, click **Add Data**.
2. Ensure you are searching **Living Atlas**, and in the search bar, type `places cdc` and press Enter.

3. Double-click the group layer **PLACES: Local Data for Better Health** by **data_cdc**.
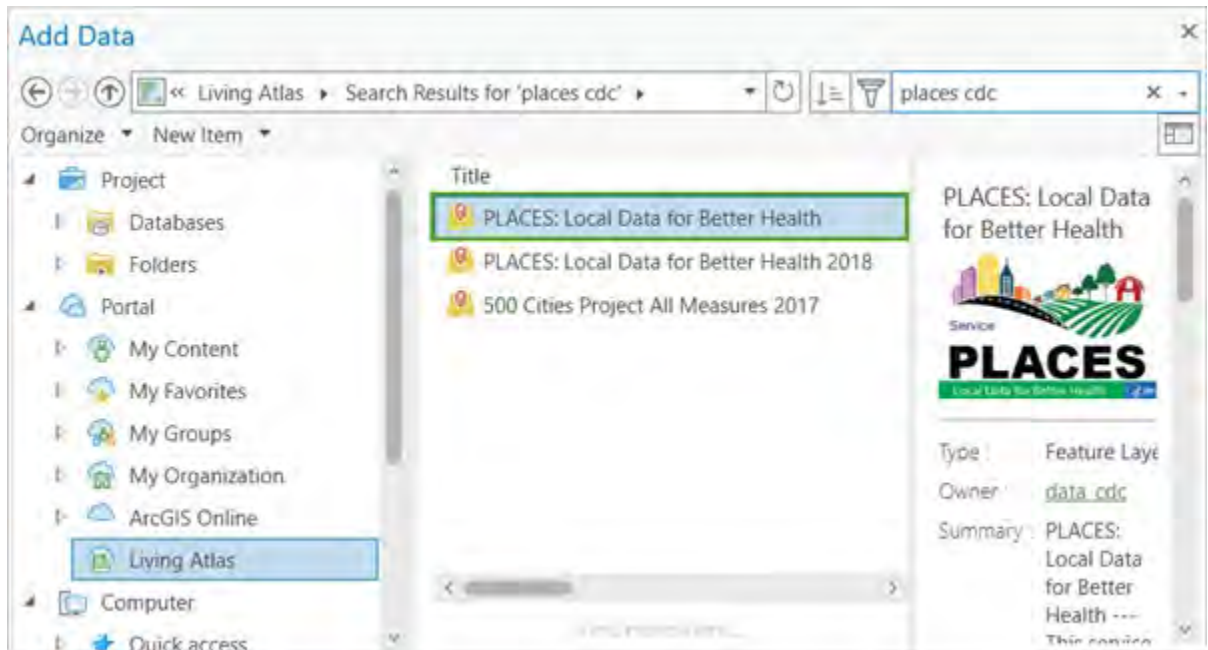
The group layer contents appear. You will only need the **Tracts** layer.

4. Click the **Tracts** layer and click **OK**.
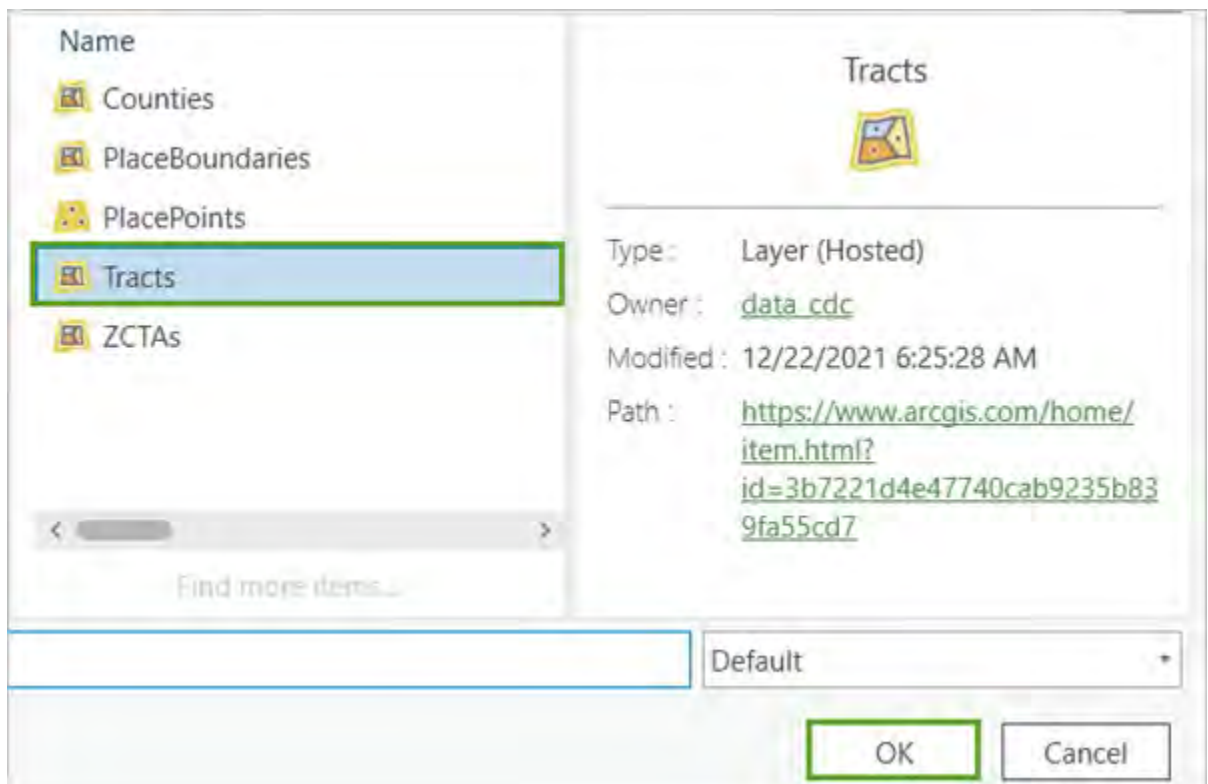
The **Tracts** layer adds to your map. The default symbology shows the census tracts by the percent of the population in those tracts who lack health insurance coverage. You are interested in the data on asthma prevalence in this layer, but you do not need to change the symbology for now.

The **Tracts** layer also shows data for the entire country. You only need data for Lucas County. Before you can create the definition query expression for the layer, like you did earlier in the tutorial, you want to find out the unique identifying number for the county.

5. On the ribbon, on the **Map** tab, in the **Selection** group, click **Select**, and click a census tract near the label for the city of Toledo.

The selected tract highlights in blue, indicating that it is selected.
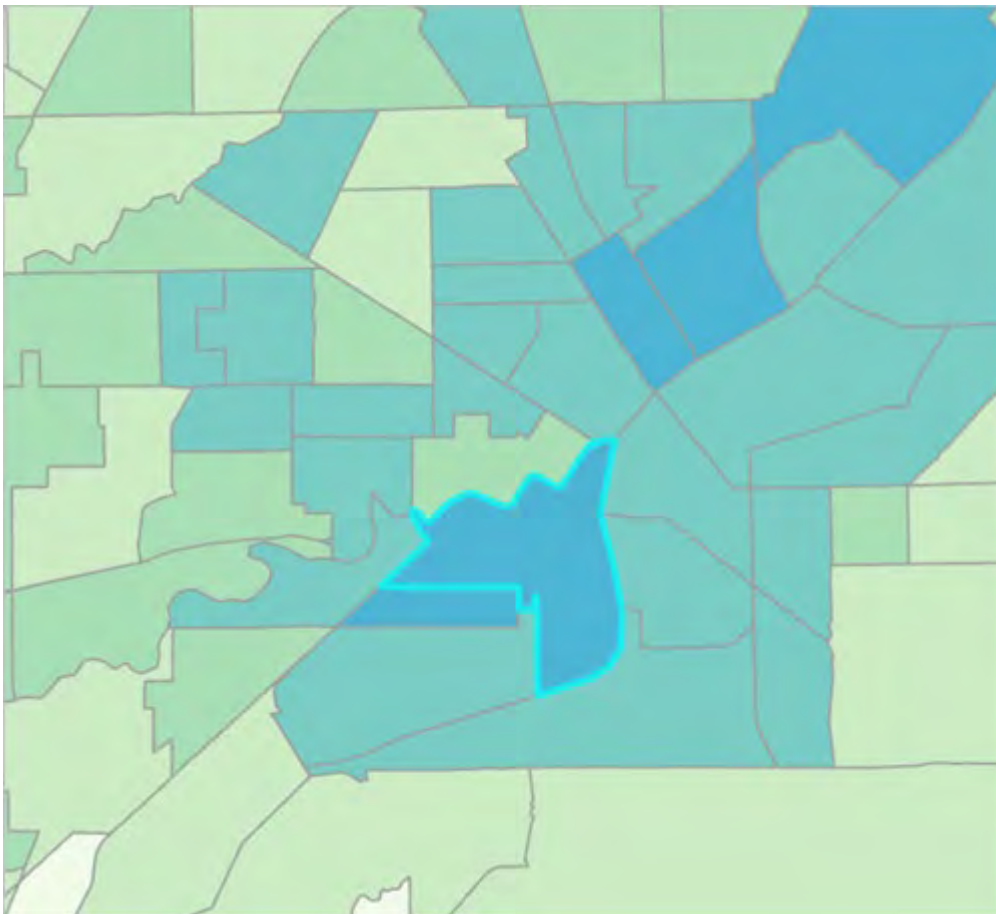
6. In the **Contents** pane, right-click the **Tracts** layer and click **Attribute Table**.
7. In the attribute table, click **Show Selected Records**.
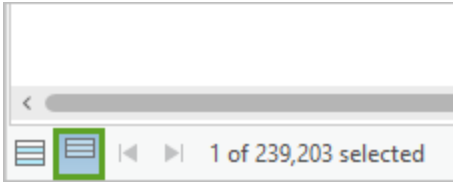
The table shows only the row for the tract you selected.

8. Scroll to see the **County FIPS** attribute and make note of the value.

The **County FIPS** value for Lucas County is **39095**. You will use this information to create a definition query for the layer so that it only shows data for Lucas County.

9. Close the table.
10. In the **Contents** pane, double-click the **Tracts** layer. In the **Layer Properties** pane, click **Definition Query**.
11. Click **New definition query** and build the expression **Where County FIPS is equal to 39095**. Click **Apply** and click **OK**.
12. On the ribbon, on the **Map** tab, in the **Selection** group, click **Clear**.

The **Tracts** layer now shows Lucas County.
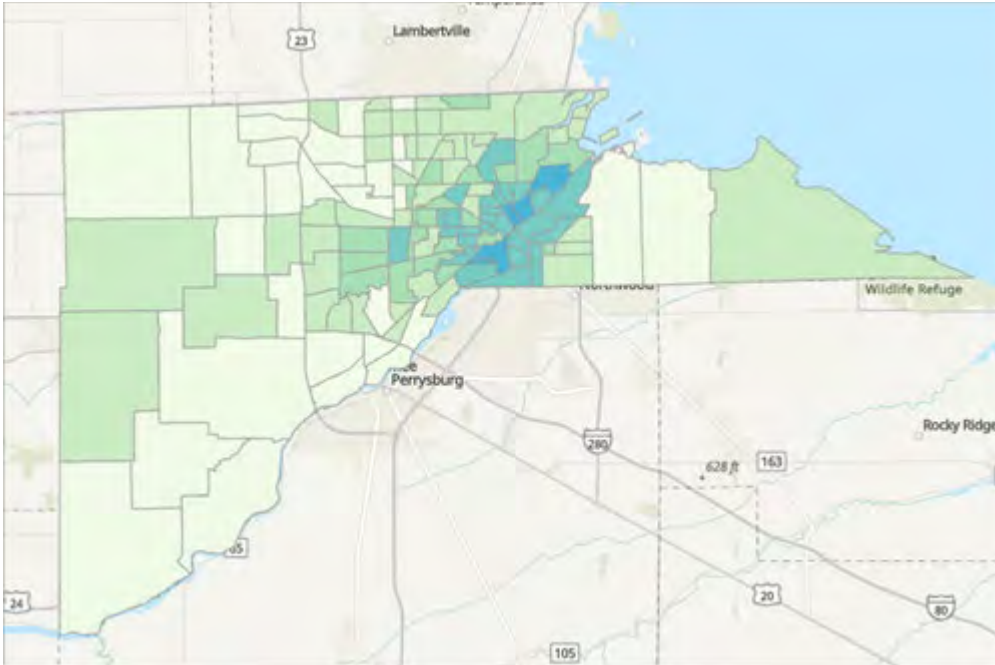
The remaining steps in the **Tasks** pane are related to summarizing and calculating the asset, condition, or outcome data and rate. Since your outcome data of interest is already provided as a rate in the layer by the CDC, you will not need to use the remaining steps. However, the CDC data is provided at a tract level, so you will use the **Spatial Join** tool to apply the asthma prevalence rate values from the tract level data to the smaller block group level data.

13. At the top of the **Task** pane, click the back arrow. In the **Tasks** window that appears, click **Yes**.
14. On the **Quick Access Toolbar**, click **Save** to save your project.
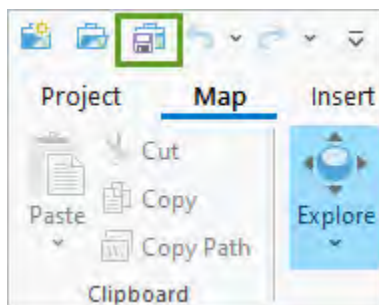
Use spatial join

Now that you have added and filtered health outcome data to your project, you will use the **Spatial Join** tool to add the asthma prevalence field from the **Tracts** layer to the **LucasCounty_Enrich** layer.

1. Click the **Contents** tab to view the **Contents** pane.
2. Right-click the **Tracts** layer, point to **Data Design**, and choose **Fields**.
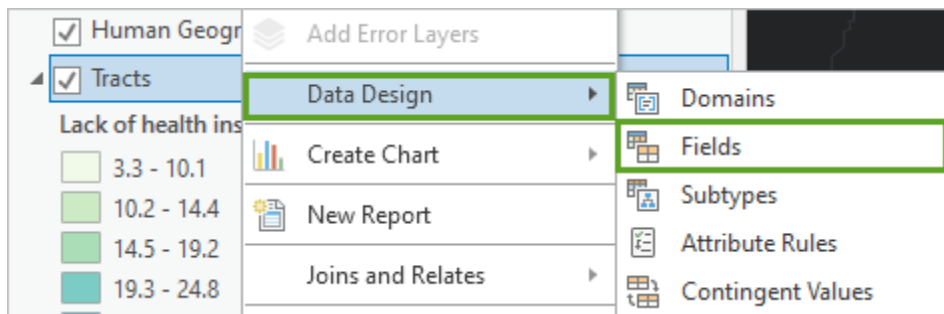
The Fields view appears for the **Tracts** layer.

The layer contains several fields for various health outcomes that the CDC reports on, but you are only interested in data related to asthma. By specifying which field you want to be visible, it will make it easier to find your field of interest when you need to set tool parameters for the remainder of the workflow.

3. At the top of the Fields view, uncheck the box for **Visible**.
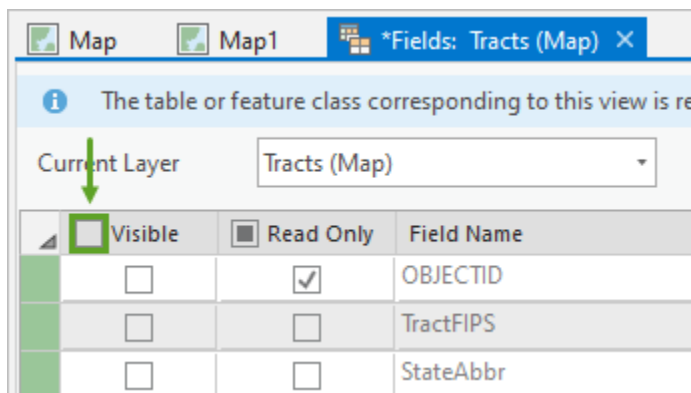
All the fields are unchecked.

Next, you will locate the data related to asthma prevalence and make it the only visible field in the layer.

4. Locate the field **Current asthma crude prevalence (%)** and check the **Visible** box for the field.

	Visible	Read Only	Field Name	Alias
	☐	☐	CANCER_Crude95CI	Cancer (except skin) crude prevalence 95% CI
	☑	☐	CASTHMA_CrudePrev	Current asthma crude prevalence (%)
	☐	☐	CASTHMA_Crude95CI	Current asthma crude prevalence 95% CI
	☐	☐	CERVICAL_CrudePrev	Cervical cancer screening crude prevalence (%)

Current Layer: Tracts (Map)

5. On the ribbon, on the **Fields** tab, in the **Changes** group, click **Save** and close the Fields view.

   Next, you will run the **Spatial Join** tool to create a new layer that includes the asthma prevalence data and the **LucasCounty_Enrich** demographic data.

6. In the **Geoprocessing** pane, click the back arrow.
7. In the search bar, type `spatial join`, and in the list of results, choose **Spatial Join**.

8. In the **Spatial Join** tool pane, provide the following parameters:
   - For **Target Features**, choose **LucasCounty_Enrich**.
   - For **Join Features**, choose **Tracts**.
   - For **Output Feature Class**, type `LucasCounty_Enrich_AsthmaP`.
   - For **Join Operation**, choose **Join one to many**.
   - For **Match Option**, choose **Have their center in**.

   You are joining the **Tracts** layer, which is data at the census tract level, to the **LucasCounty_Enrich** layer, which contains data at the census block group level. Block groups are smaller than the tract level. By choosing **Join one to many** for **Join Operation** and **Have their center in** for **Match Option**, you are assigning the values at the tract level to apply to all the block groups within the tract.
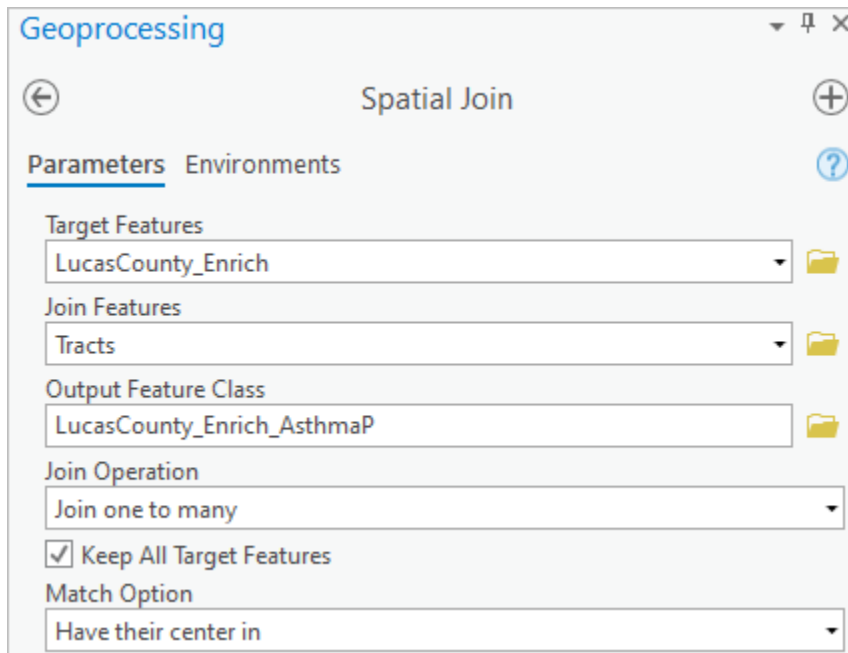
9. Click **Run**.

   The **LucasCounty_Enrich_AsthmaP** layer adds to your map and the **Contents** pane.

10. In the **Contents** pane, right-click the **LucasCounty_Enrich_AsthmaP** layer and choose **Attribute Table**. Explore the fields in the layer.

   The social and demographic indicators and the asthma prevalence data are now in the same layer with the block groups.

11. Close the table and save the project.

You have deployed the **Social Equity Analysis** solution and used the guided steps to evaluate community conditions and actions of interest. You added social characteristics data and health outcome data for asthma prevalence. Next, you will continue to use the **Social Equity Analysis** solution to create analysis and index maps.

Create a composite equity index

Now that you have all the data prepared, it is time to create maps to understand what the data can tell you about the community's socioeconomic and health outcomes are distributed across the community.

Note:

For this tutorial, race and ethnicity variables will not be included to create the index because later in the tutorial we will disaggregate the index results by race and ethnicity to better understand the disparity in experiences and needs for each group. Every index should be specific to the jurisdiction and intended use case for the index, so there may be situations where including race and ethnicity categories are important to include in this step of the index creation process.

The most important component of the Racial Equity workflow is to engage the communities. It is crucial that any social equity GIS analysis meaningfully engages and includes community members the analysis is seeking to serve. At the beginning of this tutorial scenario, your organization has already begun the work of engaging communities to identify the socioeconomic and health outcome indicators you used to enrich the block group layer.

Next, you will visualize the community characteristics and share the resulting map with the community and ask for feedback. After engaging with the target communities and gathering feedback, revisions may be necessary to ensure the data you're using is contextual to the local experience and most accurately reflects the needs of the communities.

Identify community characteristics

You will create a map with a feature layer and chart outputs to display how the six indicators you specified earlier in the tutorial are distributed. The **Social Equity Analysis** solution uses the **Calculate Composite Index** tool to run this calculation.

An index is a number that measures a subject of interest, often something that is difficult to directly measure or define, such as social vulnerability or business innovation. The [Calculate Composite Index tool](#) creates an index by combining multiple variables into a single variable. The tool follows a three-step workflow to preprocess the variables, combine the variables, and postprocess the index.

Note:

See [Calculate Composite Index tool](#) to learn more about the **Calculate Composite Index** tool. See the [Create a composite index using](#)ArcGIS Pro tutorial series for more articles, guidance documents, videos, and tutorials using the tool.

1. In the **Tasks** pane, click the back arrow. In the **Tasks** window, click **Yes**.
2. In the **Tasks** pane, expand **Create a Composite Index**, double-click **Create a community characteristics data**.
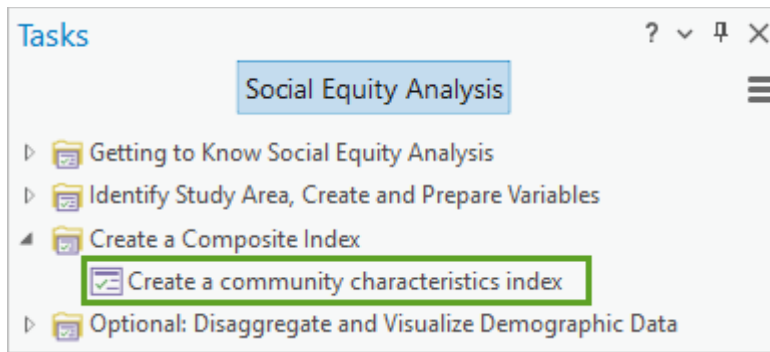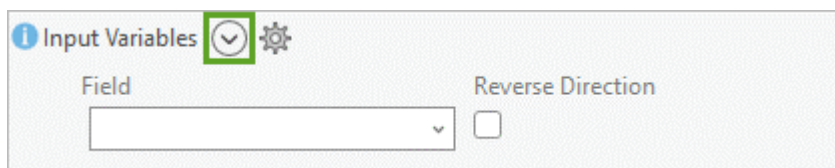
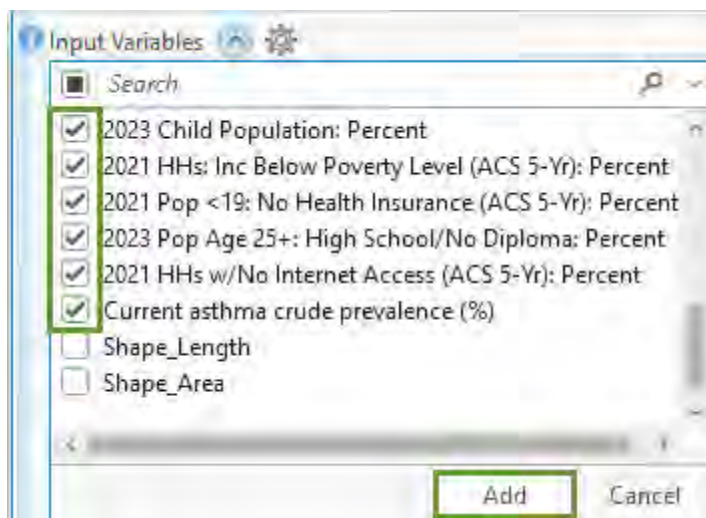The **Calculate Composite Index** tool pane appears.

3. In the **Calculate Composite Index** tool pane, for **Input Table**, choose **LucasCounty_Enrich_AsthmaP**. For **Output Features or Table**, type `ChildAsthmaIndex`.
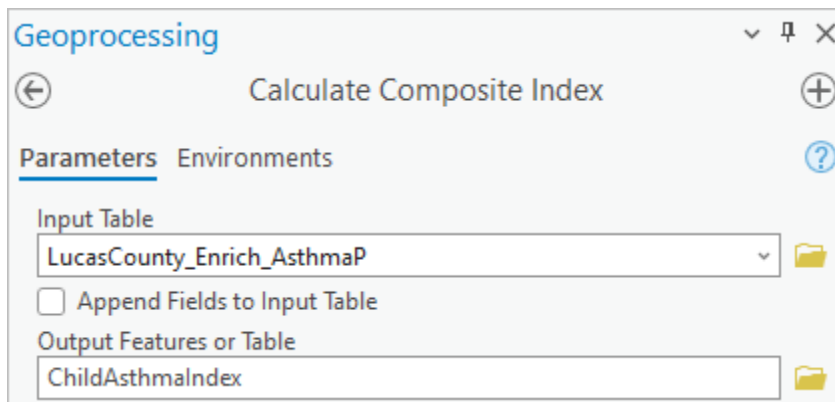

4. Next to **Input Variables**, click the **Add Many** button.

5. Check the following attributes and click **Add**:
   - **2023 Child Population: Percent**
   - **2021 HHs: Inc Below Poverty Level (ACS 5-Yr): Percent**
   - **2021 Pop <19: No Health Insurance (ACS 5-Yr): Percent**
   - **2023 Pop Age 25+: High School/No Diploma: Percent**
   - **2021 HHs w/No Internet Access (ACS 5-Yr): Percent**
   - **Current asthma crude prevalence (%)**

The six variables appear in the **Calculate Composite Index** tool pane.
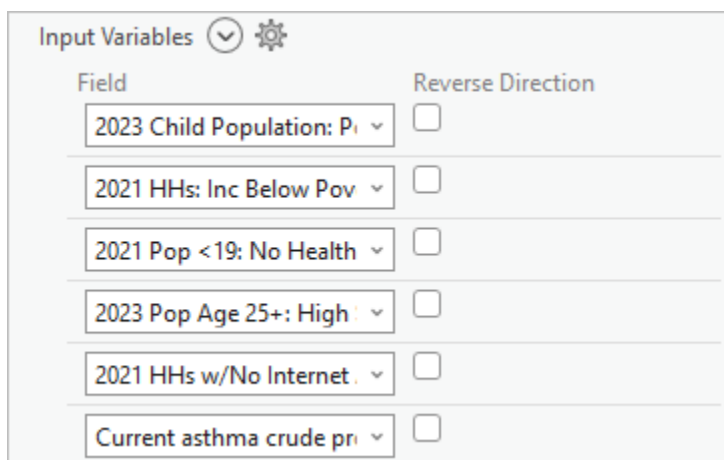
Next, you will choose the parameters for preprocessing and combining the indicators. You can use the **Preset Method to Scale and Combine Variables** parameter to choose common methods of scaling and combining the indicators. You can also manually choose a **Method to Scale Input Variables** option and a **Method to Combine Scaled Variables** option.

Note:

To learn more about the methods to scale and combine variables, see How Calculate Composite Index works.

For now, you will keep the default selection, which is to combine values by mean of scaled values using the minimum to maximum method of scaling.

6. Expand **Output Settings**. For **Output Index Name**, type `ChildAsthmaIndex`.
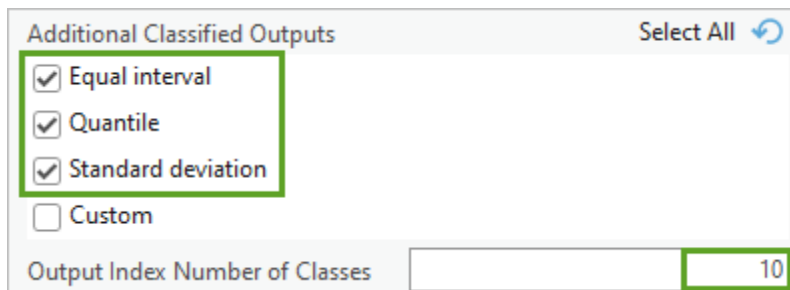
7. Under **Output Index Minimum and Maximum Values**, for **Minimum**, type `0`. For **Maximum**, type `100`.

8. Under **Additional Classified Outputs**, check **Equal interval**, **Quantile**, and **Standard deviation**. For **Output Index Number of Classes**, type `10`.

Setting the **Output Index Minimum and Maximum Values** range between 0 and 100 is one way to make the resulting index score quickly understandable.

You have completed setting the preprocessing, combining, and postprocessing parameters in the **Calculate Composite Index** tool.

9. Click **Run**.

The resulting composite index map appears.

10. In the **Tasks** pane, click **Next Step**.

The **Interpret results** page appears.

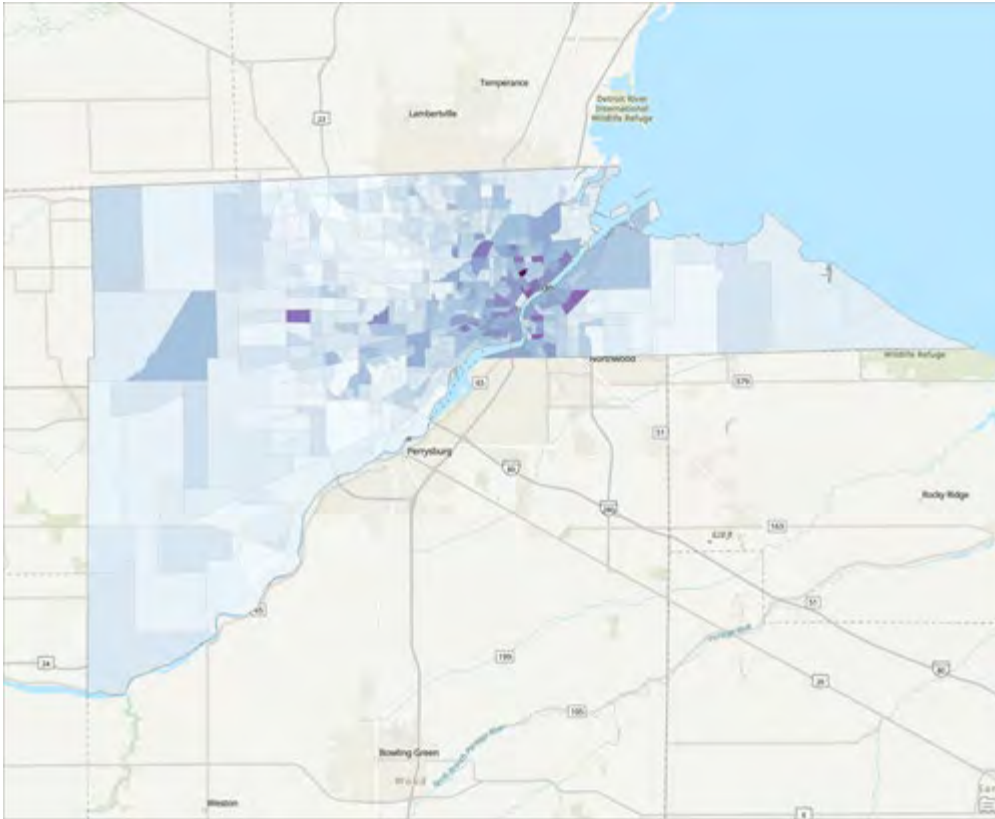It is important to explore the resulting map and charts to view the distribution of the index, determine if the preprocessing steps achieved the intended result, and review any correlations among the input variables and the index. Other questions to consider include the following:

- o Does the resulting index address the index question and dimensions?
- o How are the input variables affecting the output index?
- o Do all the input variables belong or can some be removed?
- o Does the output index unintentionally weight one particular dimension or variable?
- o Is the spatial unit appropriate based on the input variables?

Note:

Review the Creating Composite Indices Using ArcGIS: Best Practices (PDF) technical paper for more guidance, tips, and best practices.

11. At the bottom of the **Tasks** pane, click **Contents**.

In the **Contents** pane, the **ChildAsthmaIndex Layers** group layer contains the **ChildAsthmaIndex** layer as well as the other additional outputs you selected in the **Calculate Composite Index** tool. The **ChildAsthmaIndex** layer also includes charts that were automatically created by the tool.

12. For the **ChildAsthmaIndex** layer, double-click the **Relationships of Scaled Variables and Index** chart.
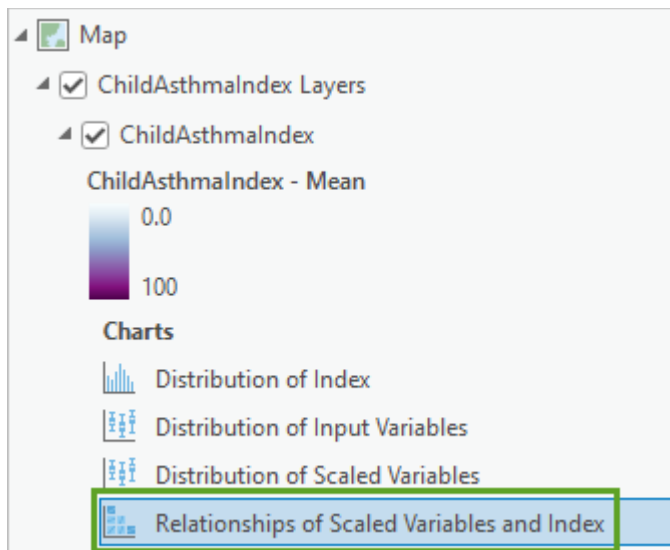
The chart appears.
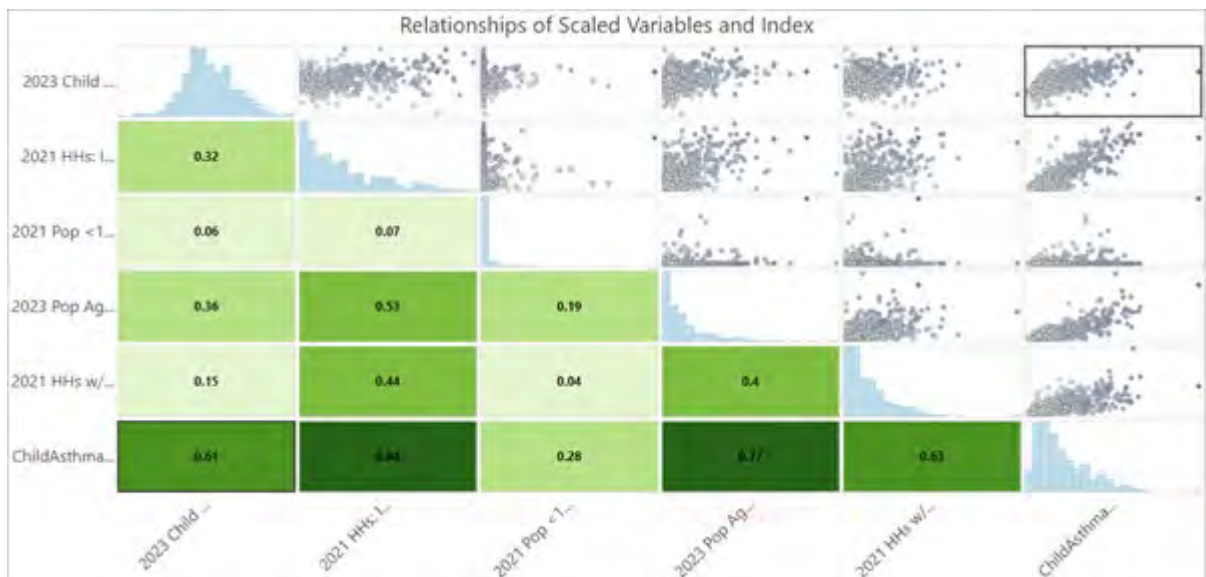
The most important row to investigate is the bottom row. This shows you the correlation between the **ChildAsthmaIndex** values and each of the variables. The results show that none of them are too highly correlated at 0.90 or higher. None of them are too low (0.10 or less) or a negative value. This means there is not likely to be unintentional weighting or uneven variable contributions in the index.

You can also use this chart to assess the correlation between the variables used to create the composite index. For assessing correlation between variables, you mainly want to ensure none of them have high values of correlation. In this example, the variables are no higher than 0.53, meaning they do not correlate too much with one another.

13. Close the chart.
14. In the **Contents** pane, uncheck the **ChildAsthmaIndex** layer and check the **ChildAsthmaIndex - Quantile Classes** layer.
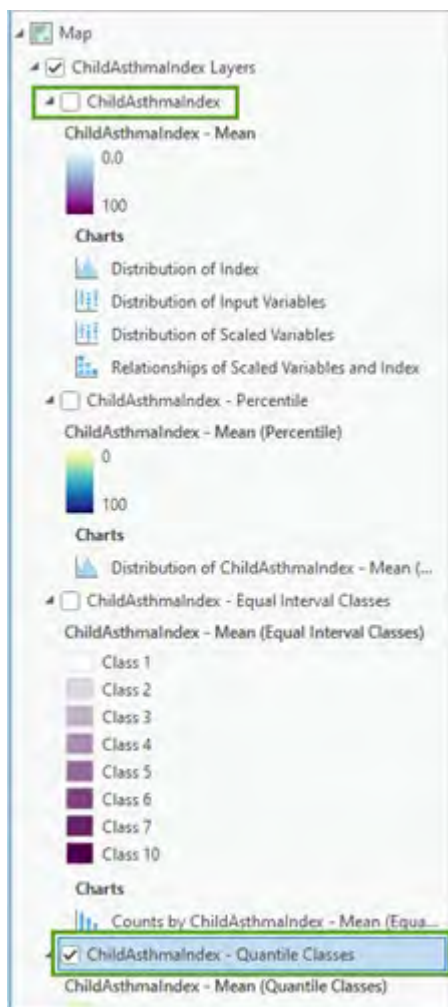
The **ChildAsthmaIndex - Quantile Classes** layer is now visible on the map.
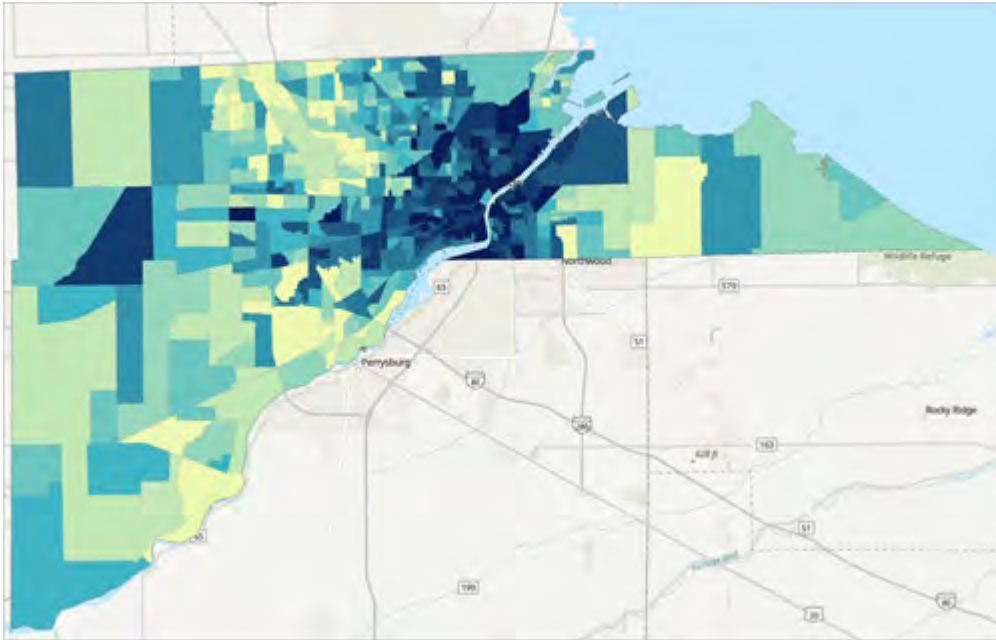
This map shows the block groups divided into 10 equal groups by their composite index score value. The block groups in **Class 10** are the block groups in the top 10th percentile of block groups with the highest index score, meaning they should be most prioritized for intervention programs.

15. In the **Contents** pane, turn off the **ChildAsthmaIndex - Quantile Classes** layer and turn on the **ChildAsthmaIndex - Standard Deviation Classes**

    The **ChildAsthmaIndex - Standard Deviation Classes** layer is now visible on the map.
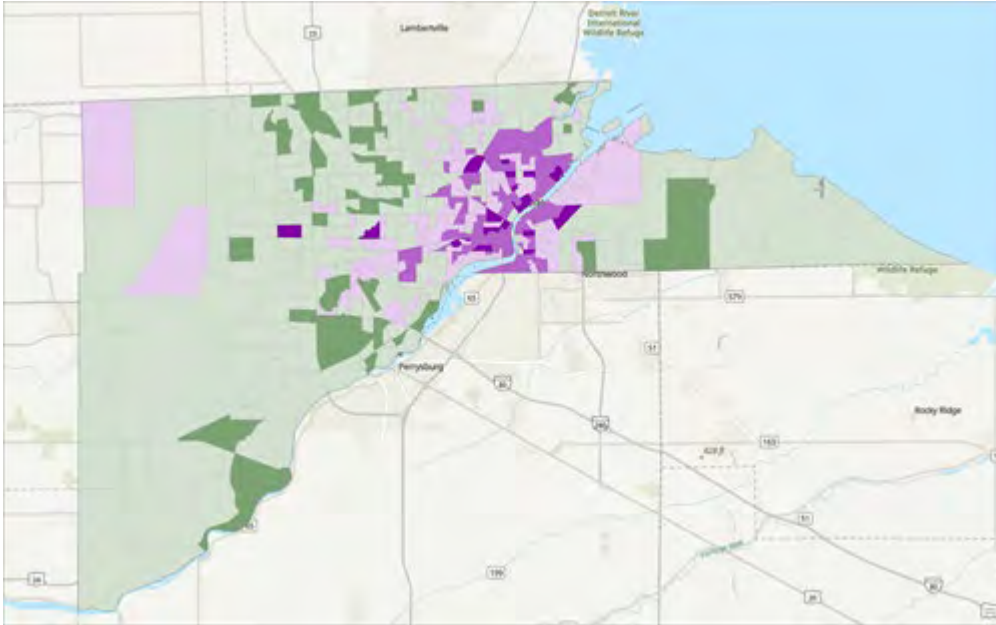
This layer calculates how many standard deviations an index score is above or below the mean of the block groups. This map can help you interpret which areas are greater magnitude of the impacts of the composite index variables. The quantile and standard deviation layers show different methods for prioritization.

16. On your own, explore the other index output layers.
17. When you are finished, return to the **Tasks** pane and click **Next Step**.

    The **Load output index into hosted feature layer** page appears. This step is not necessary at this time, so you will click **Finish** to close the task.

18. Click **Finish**.
19. Press Ctrl+S to save the project.

Share the community index map

It is important to share the resulting community characteristic data with community stakeholders to verify and ensure that it accurately represents the community and identify any needed adjustments so that the map is more reflective of the community. You will share the map as a web map.

1. On the ribbon, click the **Share** tab. In the **Share As** group, click **Web Map**.
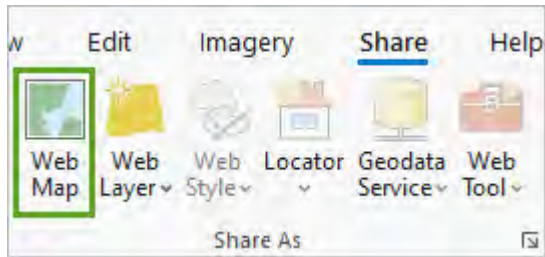
The **Share As Web Layer** pane appears.

2. In the **Share As Web Layer** pane, type a descriptive sentence for **Summary**, and for **Tags**, type a few relevant words, pressing Enter after each.
3. Under **Share with**, check the box for **Everyone**.
4. Click **Analyze**.

   An error appears requiring the layer to allow unique numeric IDs before it can be shared as a web layer.

5. Double-click the error.

   The **Map Properties** window appears.

6. In the **Map Properties** window, check the box for **Allow assignment of unique numeric IDs for sharing web layers** and click **OK**.
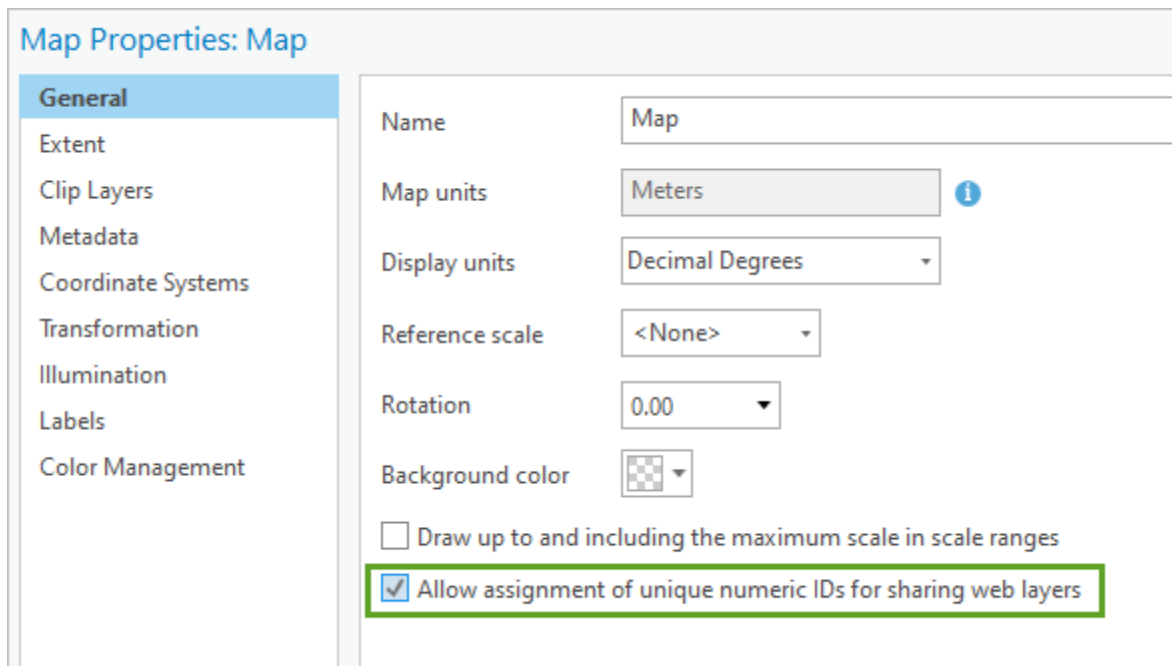
7. In the **Share As Web Layer** pane, click **Analyze**.

There are no more errors.

8. Click **Publish**.

The layer publishes as a web layer.

9. Click **Manage the web layer**.
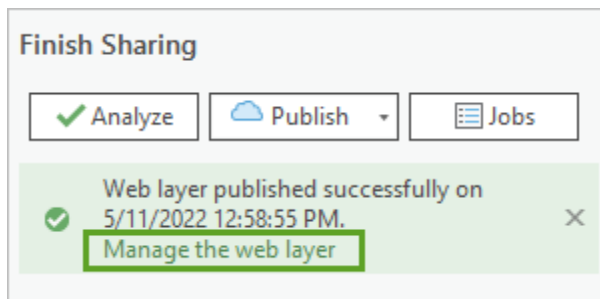
The item page for the community characteristics index layer appears in your browser.

10. Click **Open in Map Viewer**.
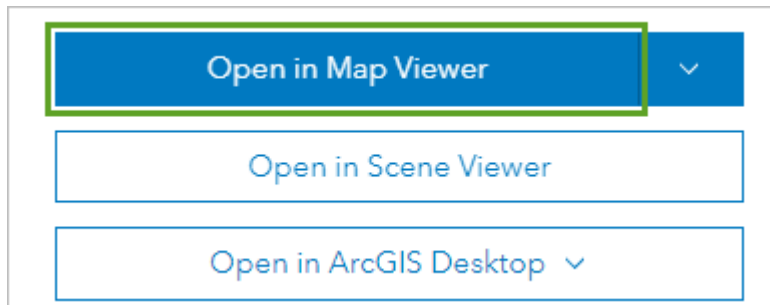
The layer opens in Map Viewer. In Map Viewer, you can configure which indicators to show on your map and share the map as a link so community members can review the data.

In addition to sharing the map showing the **ChildAsthmaIndex** results, consider creating maps that show key indicators, such as the percent of population by race and ethnicity, by internet access, or by poverty level.

Here are some questions you can consider asking the community:

- o Does the distribution of this indicator align with your experience in the community or in your area of the city?

- o Are there areas the **ChildAsthmaIndex** layer results did not prioritize that are surprising to you, based on your experience and knowledge of the city?
- o Are there other indicators that need to be added to better reflect areas that should be prioritized?

The process of community engagement is a dialogue. It may require multiple iterations to have these discussions and to develop solutions. But it is valuable because it ensures the analysis reflects lived experiences that the data may not be able to capture. With more accurate results, more accurate solutions can be identified.

Note:

To learn more about how to use Map Viewer, consider exploring the ArcGIS tutorials [Make a map of China](#) and [Create a policy map to address health conditions](#).

The map is shared at a community town hall where the analysis methodology and maps were presented. Stakeholders, such as parents from local schools, physicians from local clinics, neighborhood groups, and a community-appointed public health commission, reviewed the map and provided feedback. Next, you will integrate what you have learned from the feedback and adjust your map to more accurately represent the community.

Adjust your community characteristics data

After sharing your map with the community, residents shared an additional experience that may have been left out in the community characteristics map. It was identified that another cumulative burden families are facing is the lack of access to home ownership opportunities and accessible transportation, which are largely due to systemic barriers like economic and housing policies. Residents shared that it would be valuable to add consideration and priority for those who are currently renting their housing unit and do not have access to a personal vehicle. Such neighbors are especially vulnerable to pollution and traffic exposure because of extended time spent walking and using public transit to get to school. This is particularly important for those who live closer to the center of the city where there is a higher percentage of renters without personal vehicles.

You will use what you have learned to include an additional indicator and create an updated community characteristics index map.

1. On the ribbon, click the **Analysis** tab. In the **Geoprocessing** group, click **History**.
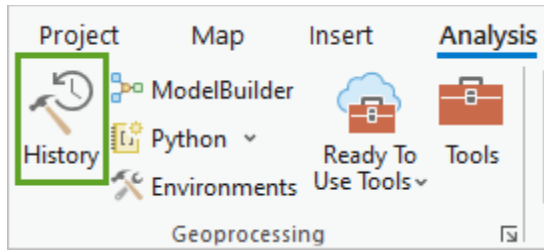
The **History** pane shows all the geoprocessing tools you have already run.

2. In the **History** pane, double-click **Enrich with Demographic Data**.

   The **Enrich with Demographic Data** tool pane appears, populated with the parameters you entered earlier in the tutorial.

   The **LucasCounty_Enrich_AsthmaP** layer already contains the other demographic indicators you added earlier in the tutorial as well as the health outcome data. You will add one more indicator to this layer using the **Enrich with Demographic Data** tool.

3. In the **Enrich with Demographic Data** tool pane, for **Input Features**, choose **LucasCounty_Enrich_AsthmaP**. For **Output Features**, type `LucasCounty_Enrich2`.
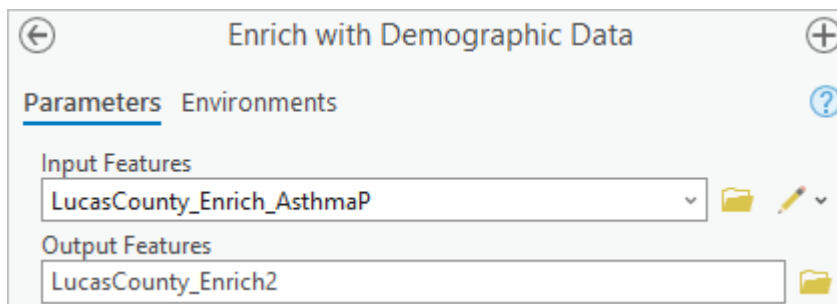
4. Under the list of variables, click **Remove all**.

5. Next to **Variables**, click the add button.

The **Data Browser** window appears.

6. In the search bar, type `renter vehicles` and press Enter.

A list of related variables appear.

7. For the variable **2021 Renter HHs by Vehicles Avail: 0 (ACS 5-Yr)**, click the **number** button to deselect it and click **percent** to select it, and then check the box for the variable.
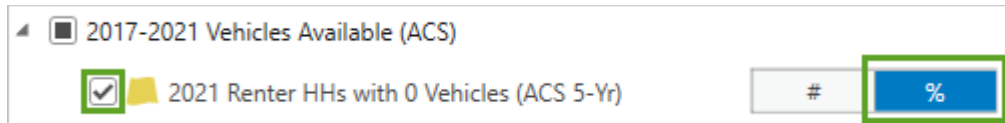
8. Click **OK**.
9. In the **Add Demographics Data** tool pane, click **Run**.

> Note:
>
> Since you are using the **Enrich** tool again, this process will require credits. Adding this single indicator requires 4.79 credits. If you do not have sufficient credits to complete this step, you can use a [provided enriched layer](#) to continue the tutorial.
>
> To add this layer, on the ribbon, on the **Map** tab, in the **Layer** group, click **Add Data**. Under **Portal**, click **ArcGIS Online**, and in the search bar, type `LucasCounty_Enrich2 owner: Learn_ArcGIS` and press Enter. Add the layer **LucasCounty_Enrich2_Learn_2024**. Skip this step to continue the tutorial.

The **LucasCounty_Enrich2** layer is added to your map and the **Contents** pane. It now contains all the indicators identified by the community to include in the community characteristics map.

10. In the **History** pane, double-click **Calculate Composite Index**.
11. In the **Calculate Composite Index** tool pane, update the following:
    - ○ For **Input Table**, choose **LucasCounty_Enrich2**.
    - ○ For **Output Features or Table**, type `ChildAsthmaIndex2`.
    - ○ At the bottom of the **Input Variables** list, add **2021 Renter HHs by Vehicles Avail: 0 (ACS 5-Yr): Percent**.

12. Under **Output Settings**, for **Output Index Name**, type `ChildAsthmaIndex2`.

13. Click **Run**.

The **ChildAsthmaIndex2** layer adds to your map and **Contents** pane.

In the **Contents** pane, you will see that the legend for the **ChildAsthmaIndex** and **ChildAsthmaIndex2** layers are the same. The difference between them is that the **ChildAsthmaIndex2** layer includes calculations for one additional indicator, the percent of residents who are renters without a vehicle.

Next, you will compare the original **ChildAsthmaIndex** layer to the updated one you just created.

14. Under the **ChildAsthmaIndex2 Layers** group layer, press Ctrl and collapse the **ChildAsthmaIndex2** layer.
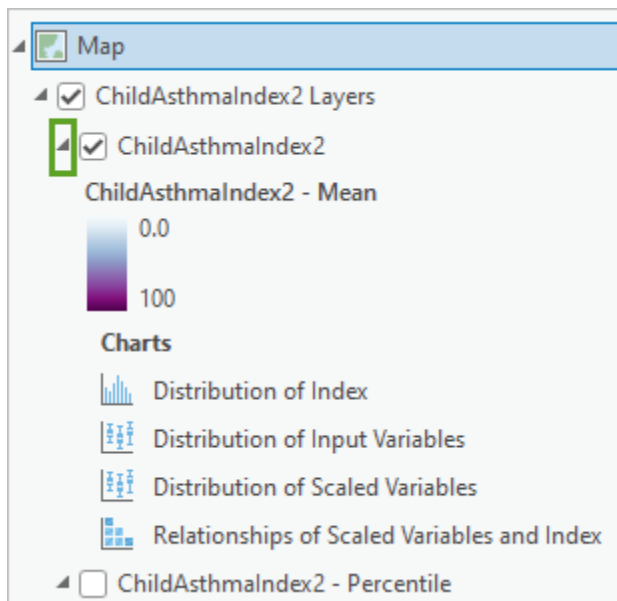
All layers in the group layer collapse.
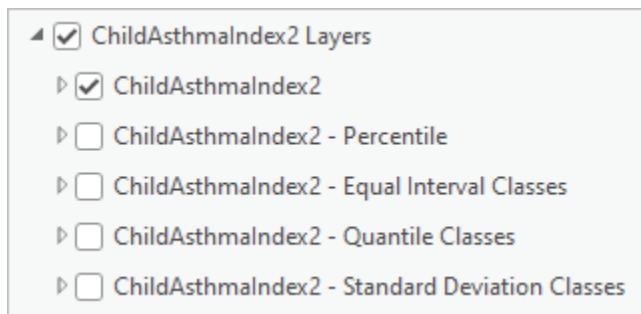
15. Under the **ChildAsthmaIndex Layers** group layer, press Ctrl and collapse the **ChildAsthmaIndex** layer and all the other layers in the group layer. Ensure the only two layers that are checked are the **ChildAsthmaIndex** layer and the **ChildAsthmaIndex2** layer. Click the **ChildAsthmaIndex2** layer to select it.

Now the layers in both group layers are collapsed, which will make it easier to use the **Swipe** tool to compare the two results.
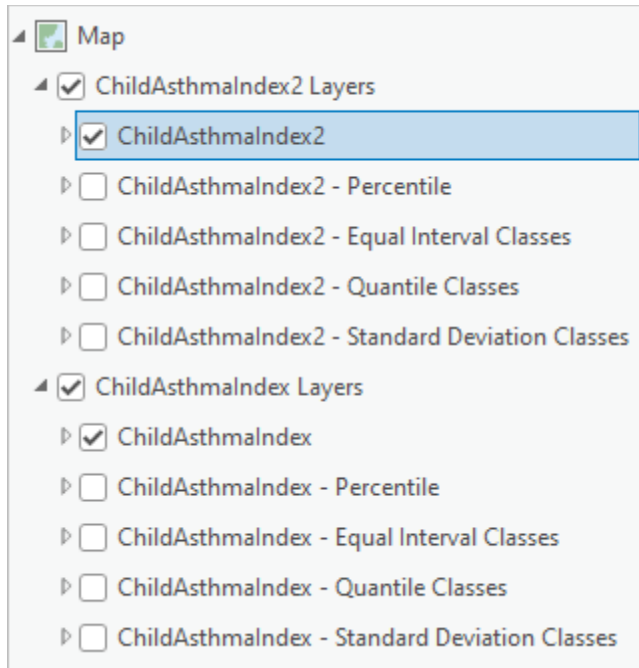
16. On the ribbon, click the **Feature Layer** tab. In the **Compare** group, click **Swipe**.
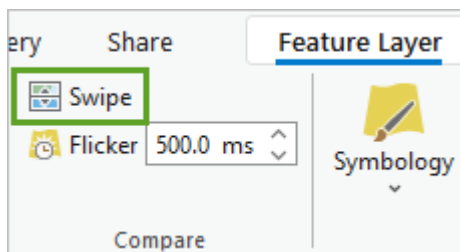
17. On the map, click and drag across the map to compare the **ChildAsthmaIndex2** layer and the **ChildAsthmaIndex** layer.

The updated **ChildAsthmaIndex2** layer brought more focus to a couple of block groups. It is likely that these were areas that experience a higher proportion of residents who have the added exposure risk of increased time outdoors, exposed to air pollutants, because there were more renters without vehicles in these areas.

18. On the ribbon, click the **Map** tab. In the **Navigate** group, click **Explore** to deactivate the **Swipe** tool.
19. Use what you have learned to share the layer as a web map and share the resulting map with community members and stakeholders.
20. Save your project.

Because you took the important step of engaging the community in your first round of the composite index map, you integrated an important and locally relevant indicator to your analysis. You added the indicator to your analysis and created a map that better fits the community's lived experiences and needs.

Next, you will disaggregate the index results by race and ethnicity and prioritize which schools in the county are in the best location to host the public health education program.

Evaluate the equity index and propose program locations

When creating a composite index, it is important to evaluate the index in order to better understand how the index impacts different subpopulations of your target project area. In this section, you will also use network analysis to determine which five public schools are in the best location to reach the block groups with the highest priority index scores.

Disaggregate demographic data

Disaggregated data is data that has been broken down by subcategories, such as race and ethnicity groups, gender, language, and more. Disaggregating data can reveal the benefits and burdens experienced by each subcategory that may not be evident in the aggregated data. In this tutorial, you have created an equity index that considered several socioeconomic and health outcome data. In this section, you will disaggregate the mean index score values by race and ethnicity to determine which groups are experiencing a disproportionately high burden of childhood asthma indicators.

1. In the **Tasks** pane, click the back arrow. Click **Yes** to continue.
2. Expand the **Optional: Disaggregate and Visualize Demographic Data** folder and double-click **Disaggregate and visualize demographic data**.
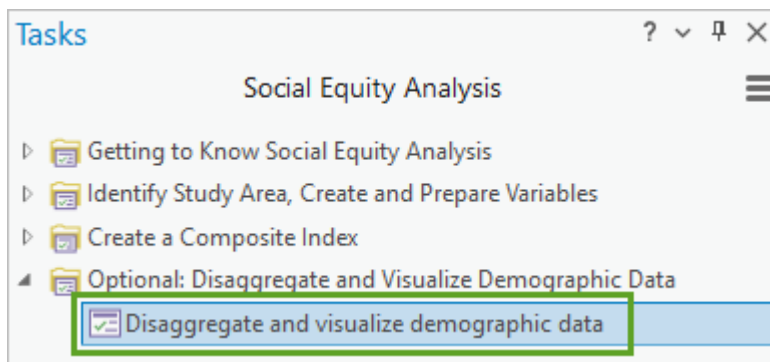
3. Click **Next Step**.
4. In the **Enrich with Disaggregated Demographic Data** pane, for **Input Features**, choose **ChildAsthmaIndex2 - Quantile Classes**. For **Output Features**, type `ChildAsthmaIndex_Disaggregated`.
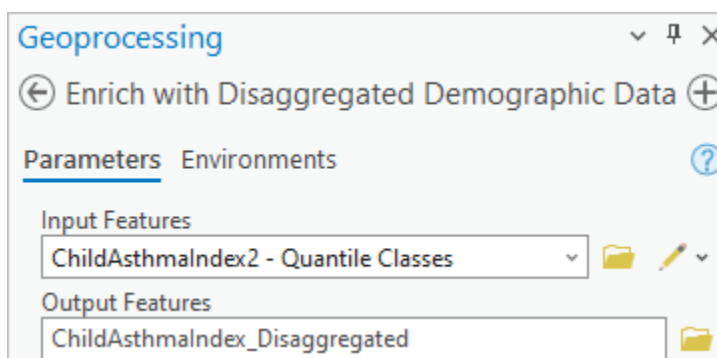
5. Under **Variables**, for all the preloaded variables except **2023 Hispanic Pop**, click the remove button.
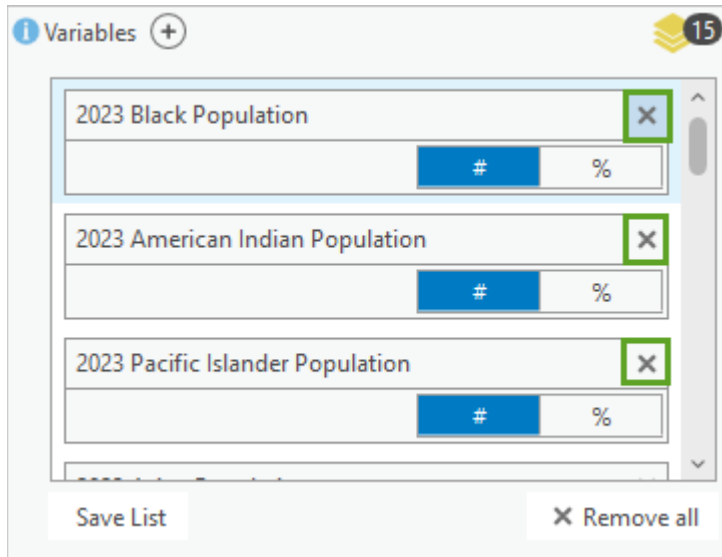
The only variable that remains in the **Enrich with Disaggregated Demographic Data** tool pane is **2023 Hispanic Population**.
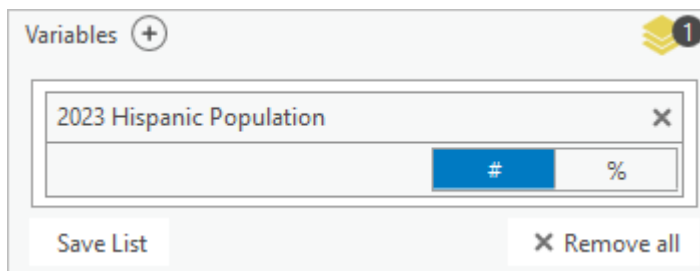
6. Next to **Variables**, click the add button.
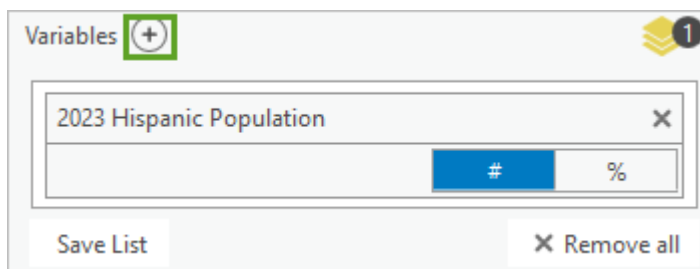
The **Data Browser** window appears.

7. In the **Data Browser** window, double-click **Race**.

8. Double-click **Non-Hispanic Origin**.
9. Expand **2023 Race and Hispanic Origin (Esri)**.
10. For the following variables, click the percent button to select it, deselect the number button, and check the variable:
    o   2023 Non-Hispanic White Pop
    o   2023 Non-Hispanic Black Pop
    o   2023 Non-Hispanic American Indian Pop
    o   2023 Non-Hispanic Asian Pop
    o   2023 Non-Hispanic Pacific Islander Pop
    o   2023 Non-Hispanic Other Race Pop
    o   2023 Non-Hispanic Multiple Race Pop
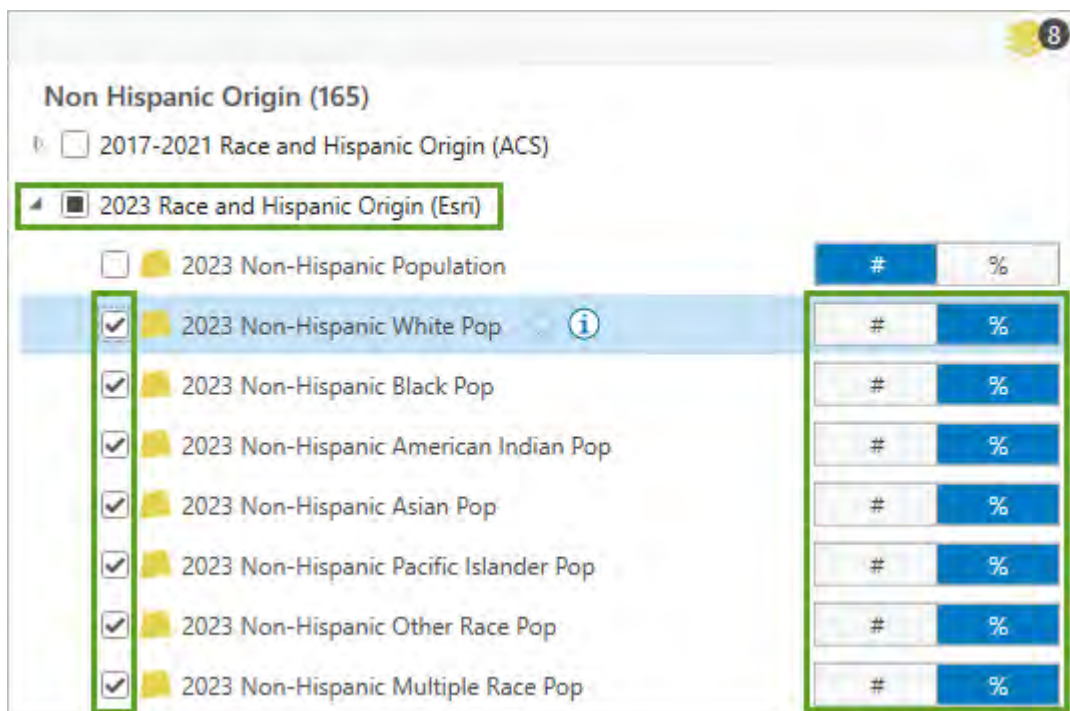
The seven percentage variables are added to the list of selected variables, bringing the total to eight selected variables.

11. Click **OK**.
12. In the **Enrich with Disaggregated Demographic Data** tool pane, click **Run**.

The **ChildAsthmaIndex_Disaggregated** layer is added to the project.
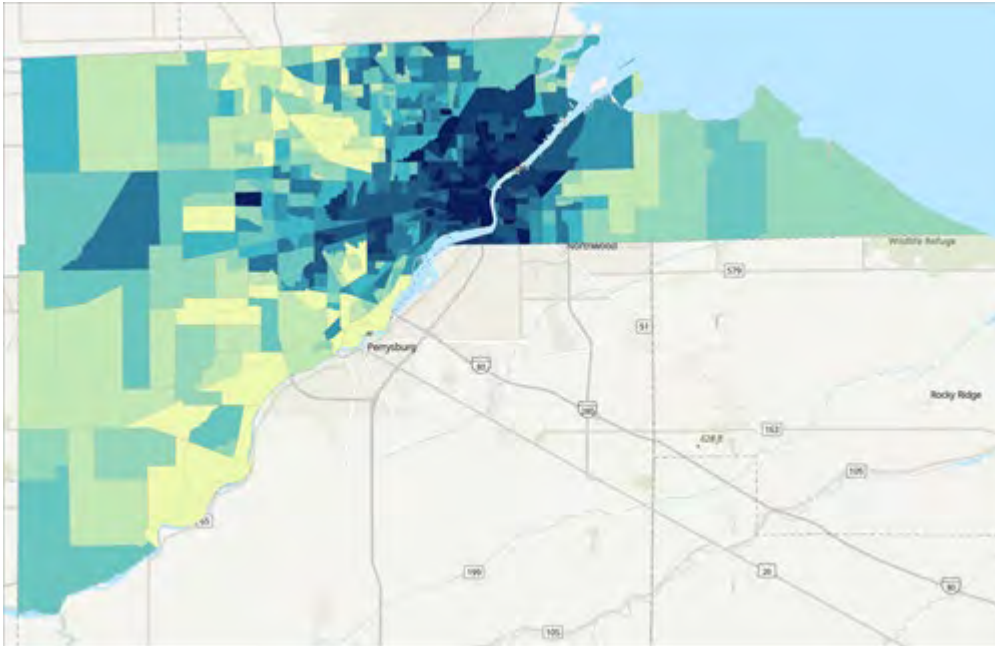
It is styled by 10 classes, with the highest class, Class 10, representing census block groups with the highest composite index score or areas of priority for childhood asthma supportive programming.

Next, you will create a chart to visualize which racial and ethnic groups are most represented in the census block groups by their index score.

13. In the **Tasks** pane, click **Next Step** twice.
14. Click **Run**.
15. In the **Chart Properties** pane, for **Category or Date**, choose **ChildAsthmaIndex2 – Mean (Quartile Classes)**. For **Aggregation**, choose **Mean**.

16. Under **Numeric field(s)**, click the **Select** button.
17. Check the eight race and ethnicity variables and click **Apply**.
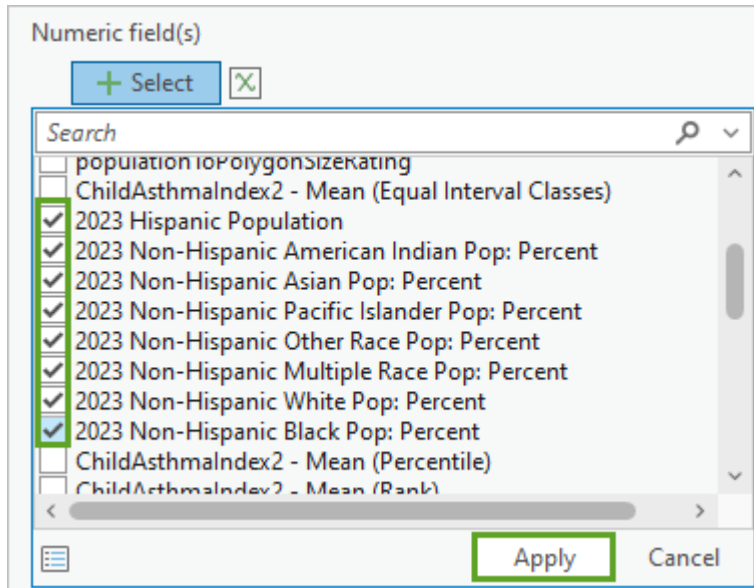
18. Click the **General** tab and enter the following:
    o   For **Chart title**, type `Mean child asthma index scores disaggregated by race and ethnicity`.
    o   For **X axis title**, type `Child asthma index scores by deciles`.
    o   For **Y axis title**, type `Percent of race/ethnicity group`.

The chart is configured.

Mean child asthma index scores disaggregated by race and ethnicity
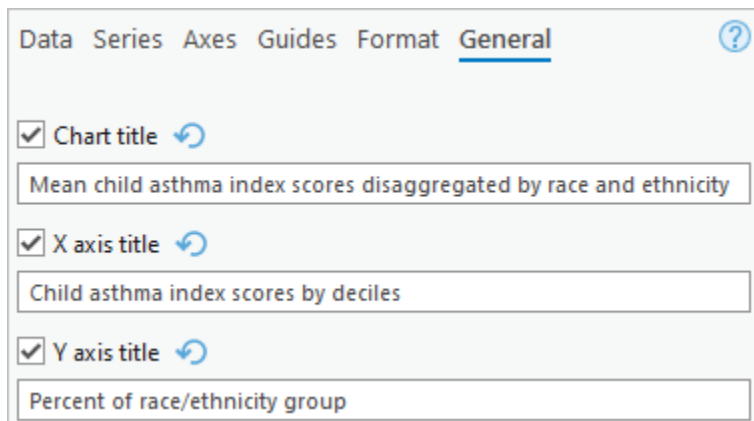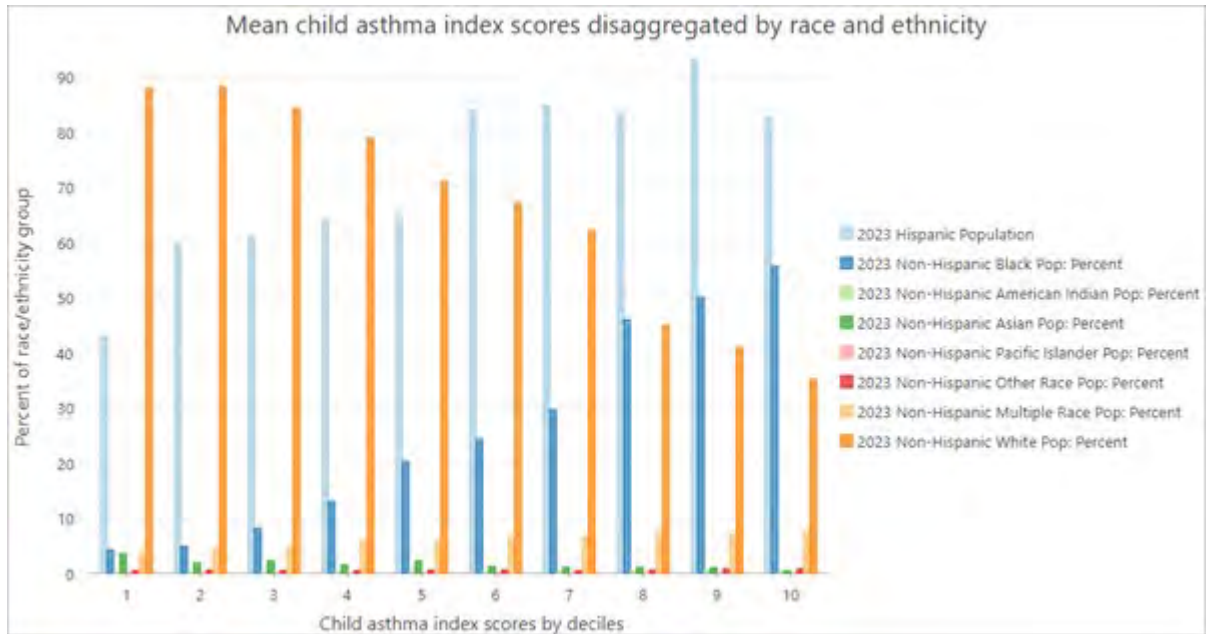
The chart shows that the block groups with the highest mean index scores, in Classes 8 to 10, have proportionally larger Hispanic and Non-Hispanic Black populations. The block groups with the lowest mean index scores, Classes 1 to 4, have proportionally larger Non-Hispanic White populations. This chart helps you better understanding which racial and ethnic groups may be experiencing more of the burdens of childhood asthma in Lucas County.

Use equitable site selection tasks

While historic policy decisions are a major reason some areas in a community lack resources and opportunity, every community also has assets it can leverage to strengthen its residents. In this scenario, public schools are an important asset as a meeting space where parents and students can learn about protecting and managing respiratory health.

1. In the **Catalog** pane, expand **Tasks** and double-click **Equitable Site Selection**.
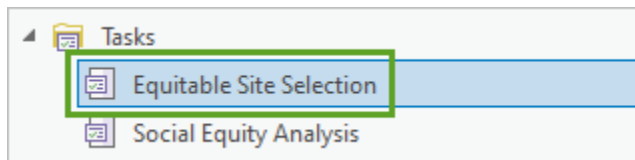
2. In the **Tasks** pane, expand **Identify Study Area, Create and Prepare Variables** and double-click **Identify study area and enrich with demographic variables**.

The **Add study area to map** pane appears. You have already defined your study area and your map is already zoomed into the area, so you will skip this step and the next step.

3. Close the **Add Data** window that appears. In the **Tasks** pane, click **Skip** twice.

The **Enrich with Demographics Data** tool pane appears.

To run the **Solve Location Allocation with Index** tool later in the tutorial, you will need to add the **2023 Total Population** variable.

4. In the **Enrich with Demographics Data** tool pane, enter the following:
   o For **Input Features**, choose **ChildAsthmaIndex2 - Quantile Classes**.
   o For **Output Features**, type `Priority_Schools_Selection`.
   o Under **Variables**, remove all the variables except **2023 Total Population**.
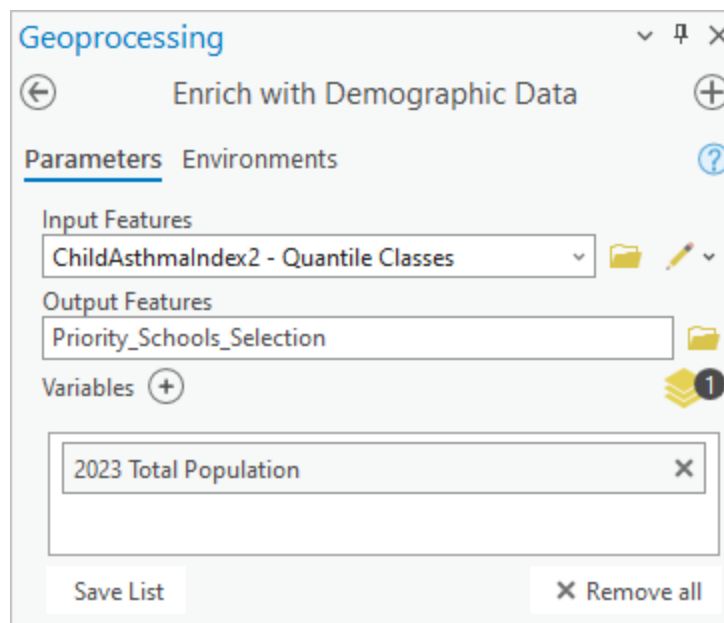
5. Click **Run**.

Note:

Running this tool will require 4.79 credits.

The **Priority_Schools_Selection** layer adds to the **Contents** pane and map.

6. In the **Tasks** pane, click **Finish**.

Next, you will use the next steps in the **Tasks** pane to create an asset layer showing the location of public schools in Lucas County.

7. In the **Tasks** pane, expand **Identify Study Area, Create and Prepare Variables** and double-click **Create and prepare additional variables**.

    The **Geocode Addresses** pane appears.

    The next step is to import assets, condition, or outcome data. You will import asset data, which are the public schools where the health education workshops will be hosted.

8. Download the file [LucasCounty_Schools_List_data.csv](#) and save it to a folder you can easily access.

    The `.csv` file contains information on the public schools within the two school districts located in Lucas County.

    Note:

    The data was acquired from the [Ohio Educational Directory System](#) online tool for School and District Directory Information on the Ohio Department of Education website.

9. In the **Geocode Addresses** pane, for **Input Table**, click the browse button.
10. In the **Input Table** window that appears, browse to the folder where you saved the `.csv` file, click **LucasCounty_Schools_List_data.csv**, and click **OK**.
11. For **Input Address Locator**, click the arrow and choose **ArcGIS World Geocoding Service**.

    Note:

    Geocoding will consume credits. This step will require 4.28 credits.
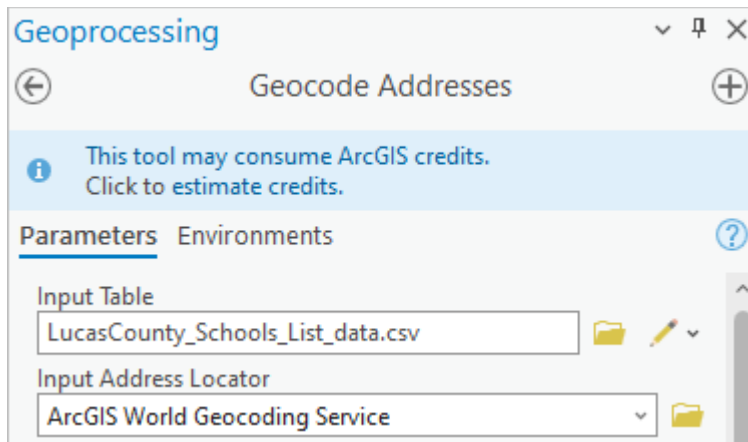
12. Set the following parameters:

- o   For **Output Feature Class**, type `LucasCounty_Schools`.
- o   For **Country**, check **United States**.
- o   For **Category**, check **Address**.
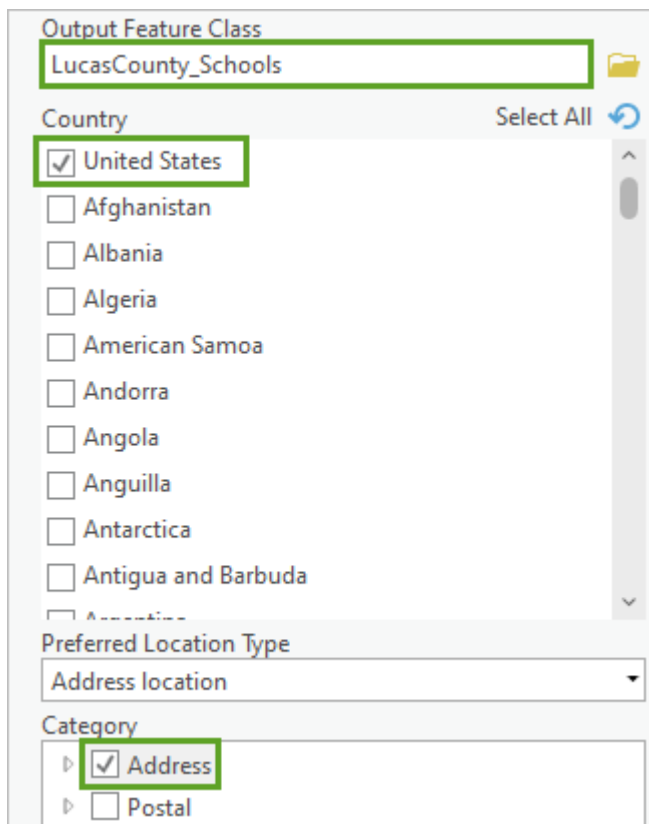
13. Click **Run**.

Note:

If you do not have sufficient credits to complete this step, you can use a [provided geocoded layer](#) to continue the tutorial.

To add this layer, on the ribbon, on the **Map** tab, in the **Layer** group, click **Add Data**. Under **Portal**, click **ArcGIS Online** and in the search bar, type `LucasCounty_Schools owner: Learn_ArcGIS` and press Enter. Add the layer **LucasCounty_Schools**. Skip this step to continue the tutorial.

The **LucasCounty_Schools** layer is added to your map.

Propose program locations with equity priorities

There are over 100 schools in Lucas County. Your organization will not have the capacity to run a program at every school, so you will need to prioritize which school locations are the most strategic to host the program and will also meet your organization's goals of equity and inclusion. You will use the Social Equity Analysis solution to evaluate the school locations and use spatial analysis to locate the schools that best fit your organizational needs.

1. In the **Tasks** pane, click the back arrow.
2. Expand **Evaluate Coverage and Perform Site Selection** and double-click **Identify candidate sites**.

   You already added the school data, so you will skip the first step.

3. Click **Next Step**.

   The **Add Candidate Sites** pane appears. You will use this tool to add the school locations as candidate asset locations. This will set all the schools in the county as potential sites to host the program.

4. In the **Add Candidate Sites** pane, for **Candidate Sites**, choose **LucasCounty_Schools**.
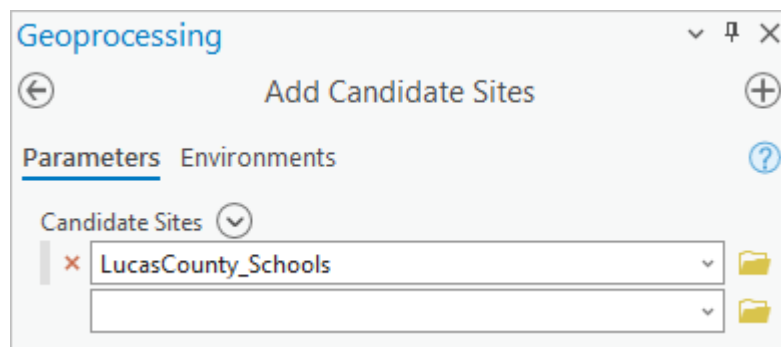
5. Click **Run**.
6. If necessary, in the **Contents** pane, drag the **SiteSelection** group to the top of the **Contents** pane.
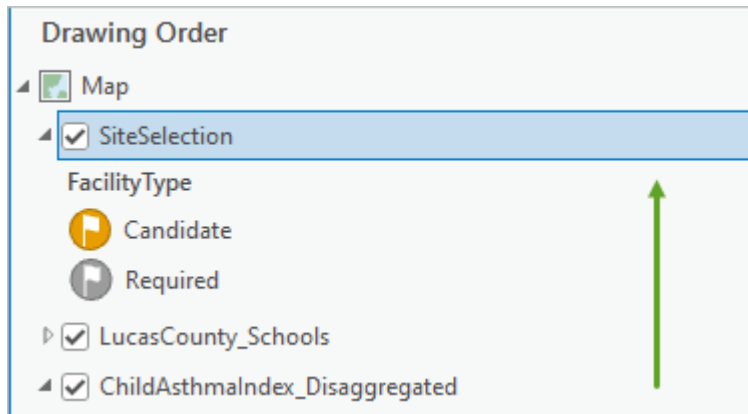
The orange flag symbols on the map indicate that the candidate asset locations are set to the school locations.
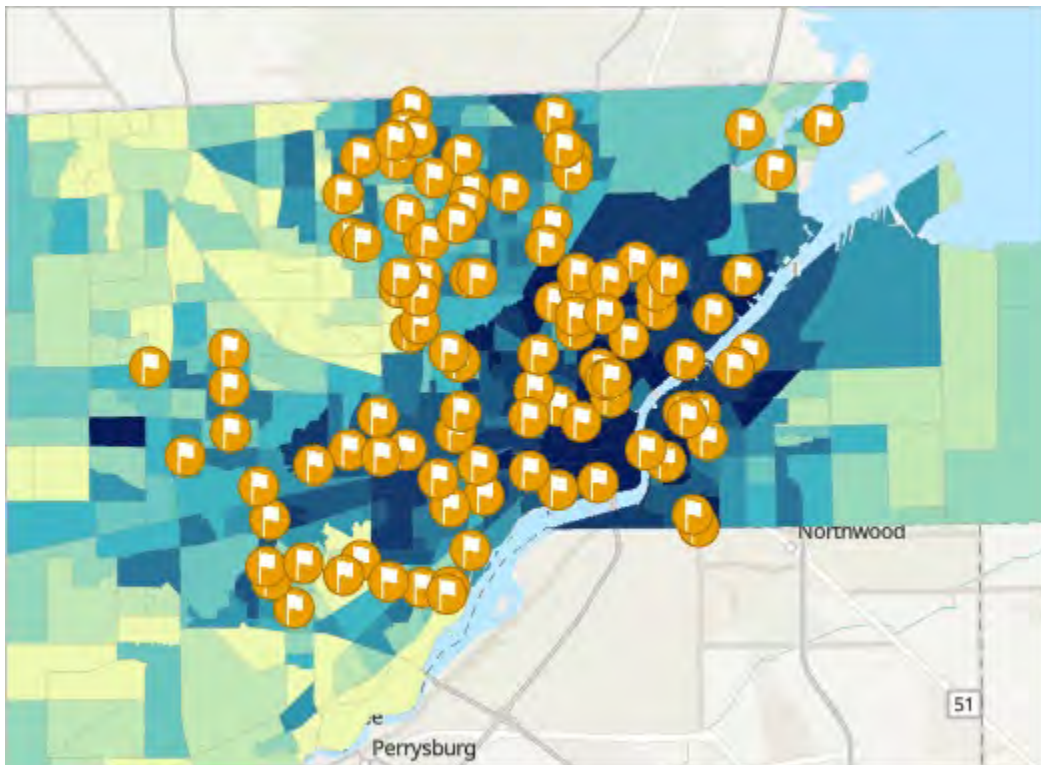
For this tutorial, you will only consider the locations of schools. But it is important to consider other potential assets in a community, such as public parks, community centers, libraries, and other spaces that might serve as a suitable location for your intervention. Consider soliciting community input on potential assets.

7. In the **Tasks** pane, click **Next step** and **Finish**.
8. In the **Tasks** pane, double-click **Perform site selection**.

   The **Convert Equity Analysis Index to Demand Points** tool pane appears.

   A demand point is typically a location that represents the people or things requiring the goods and services your facilities provide. In this case, it will be the census block group they live in. You will use this tool to convert the block group layer from a polygon feature layer to a point feature layer. This will enable the analysis to calculate how close the school locations, or asset locations, are to the center of each block group. The block group center points will represent the demand points that need to access the asset locations.

   Before you create the demand points, you will use the **Select by Attribute** tool to only create demand points for block groups in the top 3 quantile classes of the index score.

9. In the **Contents** pane, turn off the **ChildAsthmaIndex2 Layers** group layer.
10. On the ribbon, on the **Map** tab, in the **Selection** group, click **Select By Attributes**.
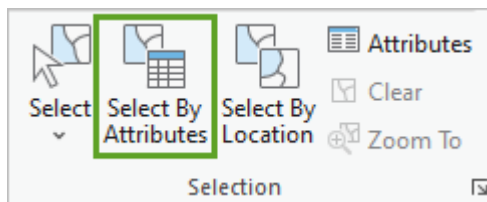
11. In the **Select by Attributes** window, for **Input Rows**, choose **Priority_Schools_Selection**.
12. Under **Expression**, build the expression **Where ChildAsthmaIndex2 - Mean (Quantile Classes) is greater than or equal to 8**.

Select By Attributes

Input Rows

Priority_Schools_Selection

Selection Type

New selection

ⓘ Expression

📁 Load   💾 Save   ✕ Remove

| Where | ChildAsthmaIndex2 - Mean (Quantile ▾ | is greater than or equa ▾ | 8 |

＋ Add Clause

13. Click **OK**.
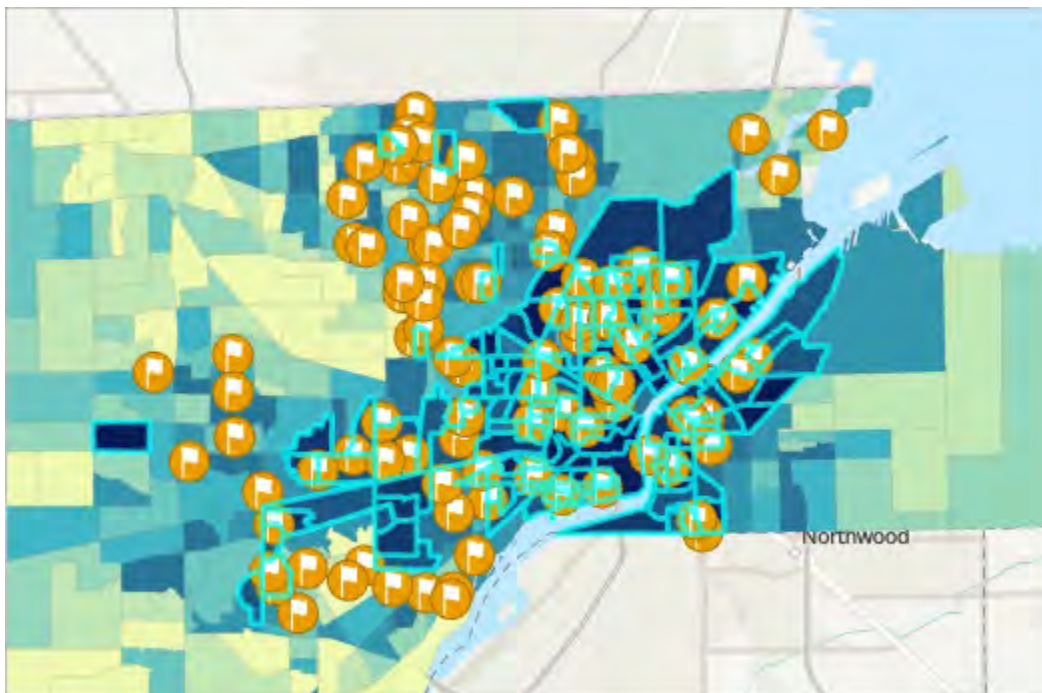
14. In the **Convert Equity Analysis Index to Demand Points** tool pane, for **Input Equity Analysis Index**, choose **Priority_Schools_Selection**. For **Output Layer**, type `Demand_points`.

The tool provides a note that 143 records will be processed. This aligns with the number of records you were expecting based on the query you used in the **Select by attribute** tool.

15. Click **Run**.
16. On the ribbon, on the **Map** tab, in the **Selection** group, click **Clear** to deselect the block groups.

    The **Demand_points** layer appears on the map with points in the center of the block groups that are in the top three classes of the index score.
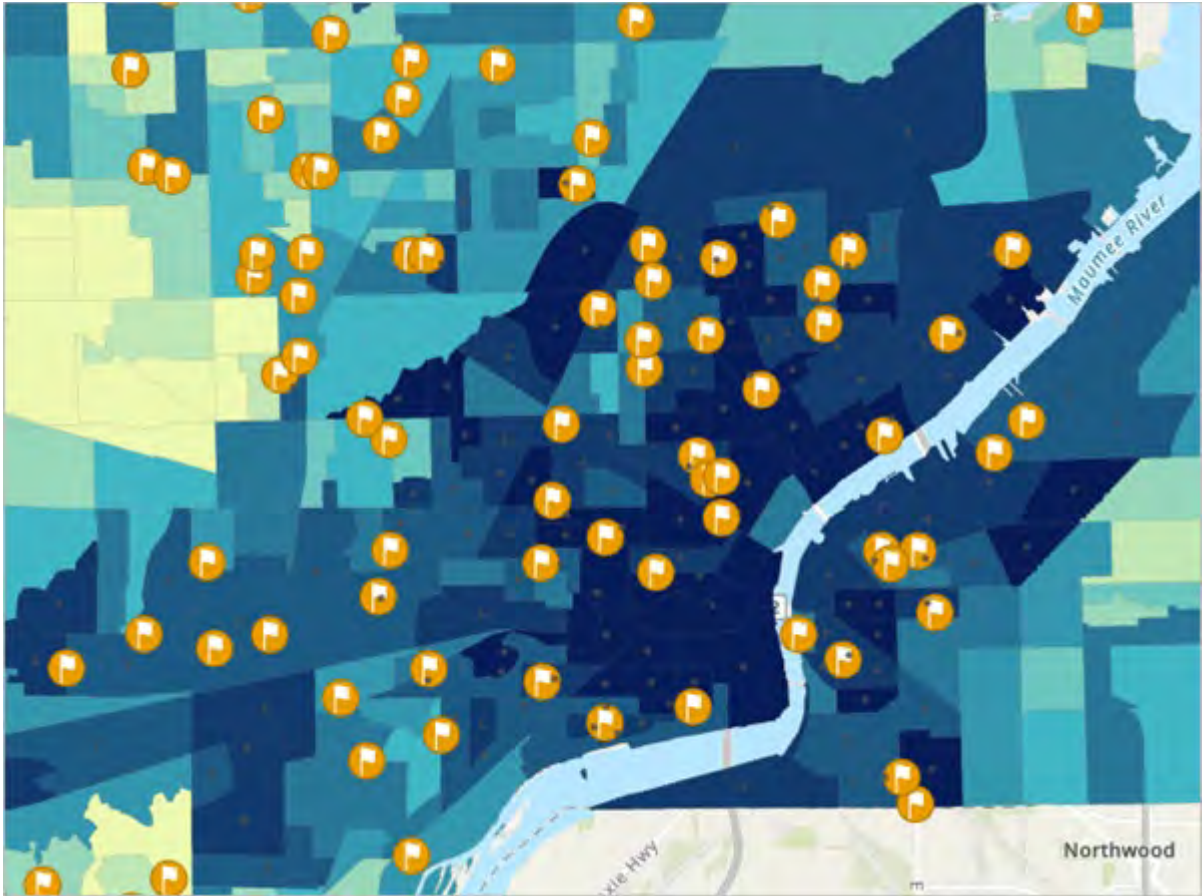
17. In the **Tasks** pane, click **Next Step**.
18. In the **Solve Location Allocation with Index** tool pane, for **Input Site Selection Layer**, choose **SiteSelection**. For **Input Demand Points Layer**, choose **Demand_points**.

You will set the travel time parameters to choose school locations within 30 minutes walking time of the priority block groups.

19. For **Number of Sites to Find**, type 5. For **Travel Mode Cutoff (time or distance)**, type 30. For **Travel Mode**, choose **Walking Time**.

Number of Sites to Find	5
Travel Mode Cutoff (time or distance)	30

ℹ Units: Minutes

Travel Mode

Walking Time ⌄

20. For **Output Allocation Lines Layer**, type `Allocation_lines`. For **Output Chosen Sites Layer**, type `Priority_schools`.
21. Click **Run**.

Note:

Running this tool requires 8.7 credits.

If you do not have sufficient credits to complete this step, you can use the following provided layers to continue the tutorial. To add the provided layers, search for and add the **Priority_Schools_Learn** and **Allocation_Lines_Learn** layers owned by Learn_ArcGIS. Skip this step to continue the tutorial.

The analysis shows that there are four schools within 5 miles driving distance of the prioritized block groups. These locations are ideal for hosting the health education programs because they are most accessible to the block groups in the top 25 percentile of equity index map analysis.
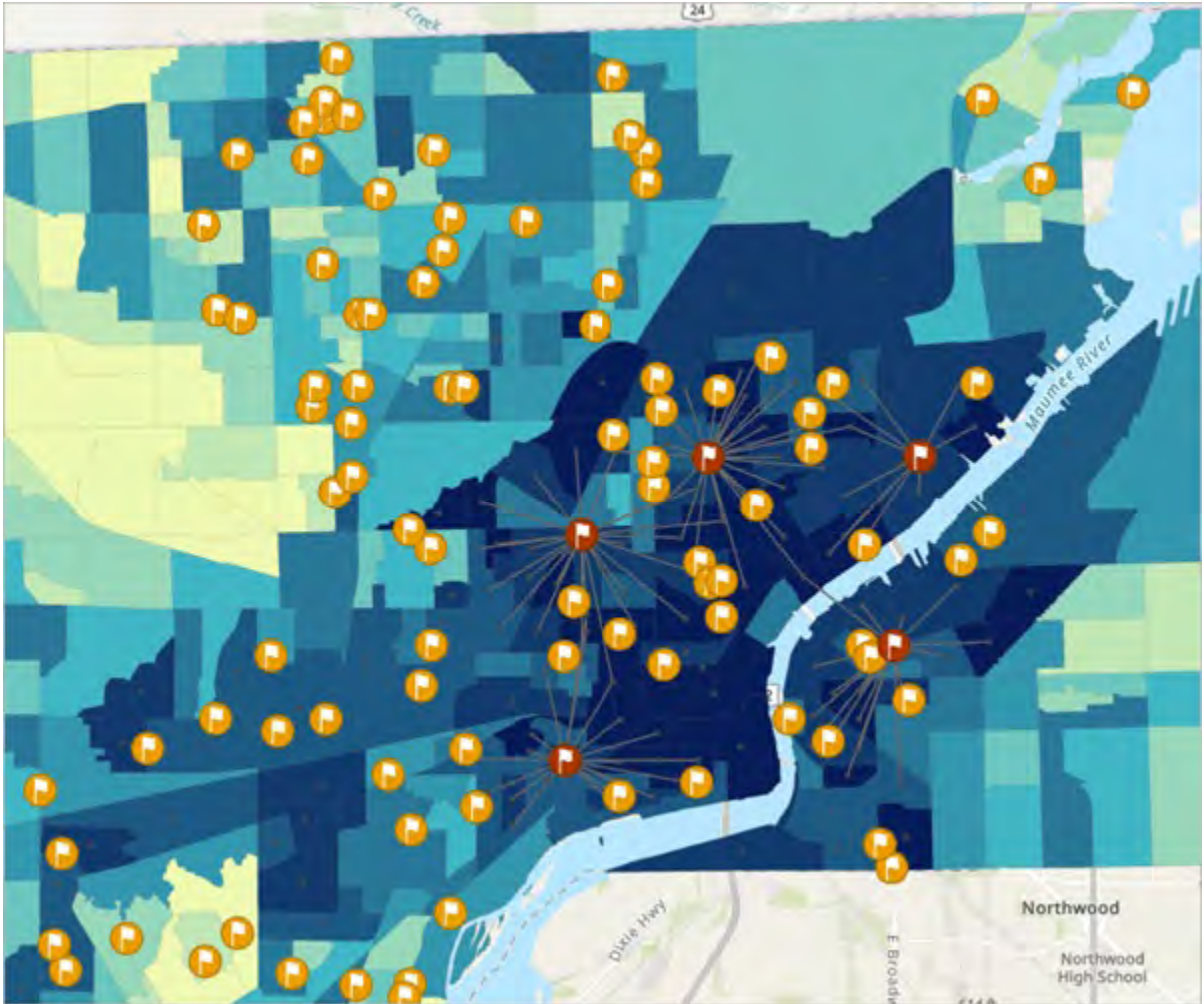
In a real-world scenario, you may need to run this tool multiple times with different distances. Consider creating multiple maps showing options to share with the community. Having maps with different options can serve as a conversation tool to help the community better understand the trade-offs and decide which options are available and should be prioritized.

22. Save the project.

You can use what you have learned to share this map with the community and discuss if there are any parameters that should be adjusted to better reflect the community's experiences in your analysis.

When conducting a racial and social equity analysis, it is vital for understanding to precede action. In this tutorial scenario, you experienced an example of the value of collaborating with community to identify the key indicators to address childhood asthma. By inviting their

feedback throughout the analysis milestones, the maps and solutions were more relevant and accurate to the local need.

"Maps and data—when combined with robust community engagement—help decision-makers and communities develop this shared understanding of the distribution of benefits and burdens in their communities and address barriers to equity. ... Social equity is inherently spatial. It is achieved when social identity (race, ethnicity, gender, disability, etc.) no longer determines one's life outcomes; when everyone has what they need to thrive, no matter where they live. Geographic information is critical for understanding, planning, and acting to achieve social equity while engaging the people that matter most—community members—along the way."

—[The Power of Partnership: The Story Behind the Social Equity Analysis Solution](#)

In this tutorial, you deployed the Social Equity Analysis solution, added demographic and health outcome data to evaluate and understand community characteristics. You validated and revised your community characteristics map based on community feedback and created an equity index. You were able to use the results from the equity index to optimize the intervention of starting a health program at local schools by analyzing which school location was most centrally located to serve the census block groups where residents were experiencing the highest risk of childhood asthma.

Consider how this equity index workflow can be applied to a variety of other scenarios for health and public policy, such as where to place a new public park, where to place cooling centers in the summer, or where to improve infrastructure for high-injury areas due to traffic collisions. Additionally, consider other methodologies for developing an index map, such as calculating priorities based on standard deviation or quantile calculations. To learn more, see [Methods for creating an index map for social equity](#).

Although it will not be covered in this tutorial, the next step in the Racial Equity workflow is to manage performance by monitoring and analyzing the performance of your initiative that you have implemented to work toward equity within your community. This step allows you to evaluate what is working (and what may not be working) and adjust your strategy, if necessary. To learn more about the Racial Equity workflow, see [Applying the Racial Equity Workflow Using ArcGIS](#).

You can find more tutorials in the [tutorial gallery](#).

Acknowledgements

- All Adobe Stock images are © 2024 Adobe Stock. All rights reserved.
- [Government Alliance on Race and Equity (GARE)](#) and their five member jurisdictions (City and County of Durham, Fairfax County, Milwaukee County, City and County of Denver, and the City of San Antonio) who [collaborated with Esri](#) to develop the ArcGIS Social Equity Analysis solution.
- Demographic data from [Esri demographic data](#).
- [USA Census Block Groups](#) from the [U.S. Census Bureau](#).
- Asthma data used is from [PLACES: Local Data for Better Health](#) provided by the Centers for Disease Control (CDC).
- [LucasCounty_Schools](#) created from [Ohio Department of Education](#).
- [Light Gray Canvas](#) map sources: Esri, HERE, Garmin, FAO, NOAA, USGS, OpenStreetMap contributors, and the GIS User Community

Send Us Feedback

Please send us your feedback regarding this tutorial. Tell us what you liked as well as what you didn't. If something in the tutorial didn't work, let us know what it was and where in the tutorial you encountered it (the section name and step number). [Use this form to send us feedback](#).

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November 26, 2024

Dear Michaela,

I have reviewed your department's proposed course descriptions and student learning outcomes (included below) for inclusion in the CCNS Catalog, and I am pleased to approve the proposed changes on behalf of our department.

The addition of these course descriptions and learning outcomes to the CCNS Catalog will provide a clear and consistent framework for these courses, ensuring alignment across institutions. While UNM does not currently offer GEOG 1115 as a general education course, having it formally established within the catalog will provide an important foundation for future offerings.

Additionally, it is important to note that UNM offers the one-credit lab course, GEOG 1115L, as a corequisite with GEOG 1115. This ensures that students effectively complete a four-credit course that integrates theoretical knowledge with hands-on practical experience, strengthening their overall learning outcomes.

The descriptions and outcomes you've outlined reflect the rigor and interdisciplinary value of the course, and I am confident they will support student success across a variety of academic and professional pathways.

Thank you for your work on this, and please let me know if any further action is required.

Best regards,

Dr. Ronda Brulotte
Associate Professor & Associate Chair
Geography & Environmental Studies

Catalog description for 1115G
Explore the principles of Geographic Information Science (GIScience) and its applications in solving human, natural, and socio-environmental challenges. Learn to evaluate geospatial data and technologies; analyze their significance, implications, and applications; and communicate insights effectively. Topics include map use, spatial data analysis, Geographic Information Systems (GIS), remote sensing, and Global Navigation Satellite Systems (GNSS). Co-requisite: GEOG 1115L.

Catalog description for 1115L
Gain hands-on field and laboratory experience with geospatial tools, including Geographic Information Systems (GIS), remote sensing, and Global Navigation Satellite Systems (GNSS). Manage, collect, analyze,

interpret, and visualize spatial data to solve real-world problem, and develop your own GIScience research report. Co-requisite: GEOG 1115G.

SLOs for 1115G
Upon completion of this course, you should be able to:
1. Explain key concepts and methods of geographic information science (GIScience).

2. Articulate the significance of geographic information in decision-making processes that address human, natural, and socio-environmental challenges.
3. Evaluate the ethical, socio-environmental, and legal implications of geospatial data, technologies, and applications.
4. Evaluate spatial and aspatial data to assess human, natural, and socio-environmental problems, as well as potential solutions.

5. Communicate effectively in written and oral formats.

SLOs for 1115L
Upon completion of this course, you should be able to:
1. Collect spatial and aspatial data using various web and mobile apps.
2. Apply spatial and aspatial quantitative methods for data management, visualization, analysis, interpretation, and spatial problem-solving.
3. Create functional and aesthetically pleasing maps.
4. Develop a GIScience research report.
5. Communicate effectively in written and oral formats.

![New Mexico Higher Education Department logo]

Michelle Lujan Grisham, *Governor*
Stephanie M. Rodriguez, *Cabinet Secretary*
Patricia Trujillo, *Deputy Secretary*

New Mexico General Education Curriculum Course Certification Form

Application Number | 3131 |

Institution and Course Information

Name of Institution	NMSU
Chief Academic Officer Name	Lakshmi Reddi
Chief Academic Officer Email	provost@nmsu.edu
Registrar Name	Gabrielle Martinez
Registrar Email	gdmart@nmsu.edu
Department	Human Rights
Prefix	HMRT
Number	2110G
Suffix	
Title	Introduction to Human Rights
Number of Credits	3

Was this course previously part of the general education curriculum?

☐ Yes   ☒ No

Is this application for your system (ENMU, NMSU, & UNM)?

☐ Yes   ☒ No

Co-Requisite Course Information

Prefix	n/a
Number	n/a
Suffix	n/a
Title	n/a

New Mexico Common Course information

Prefix	HMRT
Number	2110G
Suffix	
Title	Introduction to Human Rights

A. Content Area and Essential Skills

To which content area should this course be added? *Indicate "Other" if the course is not associated with one of the six NM General Education content areas.*

☐ Communications   ☐ Mathematics   ☐ Science   ☐ Social & Behavioral Sciences

☒ Humanities   ☐ Creative & Fine Arts   ☐ Flex

Which essential skills will be addressed?

        ☐ Communication   ☒ Critical Thinking   ☒ Information & Digital Literacy

        ☐ Quantitative Reasoning   ☒ Personal & Social Responsibility

B. Learning Outcomes

List all common course student learning outcomes for the course.

1	Understand key theoretical debates on human rights.
2	Describe historical underpinnings of international human rights.
3	Identify different foundational texts in the evolution of justice and human rights.
4	Understand how social and historical contexts have impacted beliefs on justice, rights, and human dignity.
5	Explain thematic areas in international human rights.
6	Understand regional and global multilateral mechanisms in human rights law.
7	Critically examine the efficacy of international human rights.
8	Understand the social, political, economic and other factors that have molded human rights.
9	Gain a better understanding of your own worldviews and opinions towards justice and human rights.

List all institution-specific Student Learning Outcomes that are common to all course sections offered at the institutions regardless of instructor.

n/a

C. Narrative

In the boxes provided, write a short (~300 words) narrative explaining how the course weaves the essential skills associated with the content area throughout the course. Explain what students are going to do to develop the essential skills and how you will assess their learning. The narrative should be written with a general audience in mind and avoid discipline specific jargon as much as possible.

Be sure to address the component skills listed next to each essential skill. The number of component skills that must be addressed by your narrative is listed.

Communication. *Genre and Medium Awareness, Application and Versatility; Strategies for Understanding and Evaluating Messages; and Evaluation and Production of Arguments.*

Critical Thinking. *Problem Setting; Evidence Acquisition; Evidence Evaluation; and Reasoning/Conclusion*
HMRT 2110G: Introduction to Human Rights is a course that features a curriculum that integrates the four components of the General Education criterion of Critical Thinking, i. Problem Setting, ii. Evidence Acquisition, iii. Evidence Evaluation, iv. Reasoning/Conclusion.   Problem Solving: Through assigned readings and a sequence of assignments, students are provided questions requiring critical inquiry and analysis. Students are required to address issues related to human rights and to formulate and support arguments in response to related research questions.

Evidence Acquisition: A central component of all written- and project-based assignments is the requirement for primary and secondary source research. Students will engage in library and web-based research.

Evidence Evaluation: Assignments will integrate the practice of rhetorical evaluation of resources. Students will evaluate secondary sources with attention to authorship, publication venue, strategies of audience engagement, and effective organization, integration of sources, and style.

Reasoning/Conclusion: Students will practice strategies of critical reading, writing, and project creation. To successfully complete assignments students will synthesize reading materials, secondary source search and critical analysis.

Quantitative Reasoning. *Communication/Representation of Quantitative Information; Analysis of Quantitative Arguments; and Application of Quantitative Models*

Personal & Social Responsibility. *Intercultural reasoning and intercultural competence; Sustainability and the natural and human worlds; Ethical reasoning; Collaboration skills, teamwork and value systems; and Civic discourse, civic knowledge and engagement – local and global*

1. Intercultural reasoning and intercultural competence is meant to support effective and appropriate interaction in a variety of cultural contexts. This course provides an opportunity to consider human rights in the local and global context as well as social and political policy in the broader realm of the U.S. as a nation state.

2. Sustainability and the natural and human worlds: Current trends in environmental degradation from human activities, complicated by international borders, is accelerating at a rate that is not sustainable. This course addresses how human rights foregrounds how principles, policies, and practices attend to this acceleration

3. Ethical Reasoning: This course addresses how colonization impacted the development and historical evolution of borders locally and around the globe. It also addresses how increased border enforcement and the criminalization of immigrants has impacted border regions.

4. Collaboration skills teamwork and value systems: One of the benefits of developing collaboration skills, teamwork and value systems is that students (even with vastly different skill sets) can mentor and teach each other their skills. This course incorporates this by centering discussion as an essential epistemological method.

5. Civic discourse, civic knowledge and engagement – local and global: An essential component of this class is a requirement that students become knowledgeable and engage in civic affairs. After exploring the history of border drawing and its impact on populations, students then examine how border identity development is impacted by violence, community building, and contested spaces. They will also examine how social movements and human rights advocacy impacts the protection of rights for those living along the border. This is achieved through both assignments and discussion

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Information & Digital Literacy. *Authority and Value of Information; Digital Literacy; Information Structure; and Research as Inquiry*

i. Authority and Value of Information: This course strengthens students' informational skills by encouraging them to identify possible motives and intentions of multimodal texts. The course provides students with the tools to engage in discussion, to understand compositional choices made by cultural producers across modes, and to compare strategies in required reading materials.

ii. Digital Literacy: The course strengthens students' digital literacy skills, teaching them to recognize diverse agendas and identify tones and biases and instilling productivity, communication, and assistive tools.

iii. Information Structure: Teaching research as inquiry asks students increasingly complex questions and asks them to develop additional questions of their own.

iv. Research as Inquiry: Teaching research as inquiry asks students increasingly complex questions and asks them to develop additional questions of their own. Students will discover and refine critical concepts in Human Rights and understand the processes and approaches to Human Rights research.

D. Assessment (Must be on file with HED by August 1, 2019)

Link to Institution's General Education Assessment Plan	https://gened.nmsu.edu/recertification-and-assessment/Institutional-GE-Assessment-Plan.pdf

HMRT 2110G Introduction to Human Rights

Sample Assignment

Critical Thinking Assignment #1

Language and terminology is an important aspect of this course. It reveals the logics and ideologies that are being used when deploying a particular term or concept. Because phrases and labels are constructed throughout history, our goal in this class is to uncover the origins of these constructions, and the reasons behind their representation, usage, and embeddedness in society. The first writing assignment is geared toward making you think about your own vocabulary and language usage.

The writing assignment is easy and straightforward. You will write a 2 to 3 page personal reflection addressing the following questions:

1. What are rights?
2. Do all humans have rights?
3. Are there universal human rights?
4. Are there universal rights for animals or the environment?

Please note: This is a personal reflection so feel free to engage these questions with honesty and sincerity, these assignments will not be shared with anyone.

Assignment Guidelines

The assignment will be submitted online via Canvas. Please submit the assignment as a Word (.doc or .docx) document or as PDF attachment (to submit below click **add attachment**)

The guidelines for the assignments are as follows:

--2-3 pages in length or 450 to 900 word count

--Double-spaced

--Using Times New Roman 12pt Font

--Please no messing with the margins

--Formal grammar, syntax and organization are expected

--Book and Article References are not required unless otherwise noted

HMRT 2110G: Introduction to Human Rights
New Mexico State University
Fall 2025
Online Course

Instructor Contact Information

Name	Dr. Nicholas D. Natividad
Email	ndn@nmsu.edu
Telephone	(575) 646-4661
Office	Breland Hall 104

Instructor Office Hours

Online Office Hours:
- Tuesdays & Wednesdays, 2:00pm – 4:00pm

I am also available to meet by appointment.

Required Textbook(s)

Title	Author	Edition	ISBN
None			

All readings will be provided online through Canvas.

Textbooks can be purchased online (www.**nmsubookstore**.com) through the New Mexico State University Bookstore. Textbooks can also be purchased through the campus bookstore located at 1400 E University Ave, Las Cruces, NM 88001.

Course Description

The course provides a basic introduction to international human rights including conceptual foundations and key theoretical debates with attention paid to current events that are shaping justice and human rights. It provides a variety of disciplinary perspectives on human rights including philosophy, socio-legal studies, political science, law, and criminology. The combination of understanding the conceptual foundations, key theoretical debates, and thematic areas in human rights will enable students to understand the evolution of human rights regimes and their influence in society today.

The course is broken into four parts. The first part provides an understanding of the historical underpinnings of international human rights and their evolution in society and

law. It examines foundational texts on justice and human rights that have shaped our concepts of rights and justice today. The second part focuses on global and regional mechanisms within human rights. Examining these mechanisms helps us understand the legal application and enforcement of human rights globally. The third section focuses on thematic areas in human rights. These thematic areas include: environmental law, international criminal law, refugee, migrants and asylum seekers, international women's rights, economic, social & cultural rights, and transitional justice. The course concludes by focusing on critical perspectives and local issues on human rights.

Course Objectives

The learning outcomes of the course are as follows
You should be able to:
1. Understand key theoretical debates on human rights.
2. Describe historical underpinnings of international human rights.
3. Identify different foundational texts in the evolution of justice and human rights.
4. Understand how social and historical contexts have impacted beliefs on justice, rights, and human dignity.
5. Explain thematic areas in international human rights.
6. Understand regional and global multilateral mechanisms in human rights law.
7. Explain issues and approaches in human rights enforcement and policy.
8. Critically examine the efficacy of international human rights.
9. Understand the social, political, economic and other factors that have molded human rights.
10. Gain a better understanding of your own worldviews and opinions towards justice and human rights.

Schedule

PART I: HISTORY
WEEK 1
Oct. 9 – 13: Foundations of Human Rights – Ancient to 19th Century
Lauren, P.G. (2013) "The Foundations of Justice and Human Rights in Early Legal Texts and Thought" in *The Oxford Handbook of International Human Rights Law*. Oxford Press. Pgs. 163 – 193

Martinez, J.S. (2013) "The Anti-Slavery Movement and the Rise of International Non-Governmental Organizations" in *The Oxford Handbook of International Human Rights Law*. Oxford Press. Pgs. 1 – 22

WEEK 2
Oct. 16 – 20: Foundations of Human Rights – 20th Century & Universal Declaration Model
Ishay, M. (2008) "The World Wars" in *The History of Human Rights*. UC Press. Pgs. 188 – 198 & 206 – 229

Donnelly, J. (2013) "The Universal Declaration Model" in *Universal Human Rights in Theory and Practice*. Cornell University Press. Pgs. 24 – 39

Human Rights Rescource Center (2023) "A Short History of Human Rights" in *Human Rights Here and Now*. University of Minnesota
http://hrlibrary.umn.edu/edumat/hreduseries/hereandnow/Part-1/short-history.htm
- Film/Documentary #1: The Story of Human Rights
- Discussion Board #1 Due
- Quiz #1 Due

PART II: MECHANISMS
WEEK 3
Oct. 23 – 27: Global Human Rights Regimes
Donnelly, J. (2013) "Global Multilateral Mechanisms" in *International Human Rights*. Westview Press. Pgs. 77 – 88

O'Bryne, D. (2013) "United Nations" in *Human Rights: An Introduction*. Routledge Press. Pgs. 79 – 87
- Film/Documentary #2: Prosecuting Evil
- Discussion Board #2 Due
- Critical Thinking Assignment #1 Due

WEEK 4
Oct. 30 – Nov. 3: Regional Human Rights Regimes
Donnelly, J. (2013) "Regional Human Rights Regimes" in *International Human Rights*. Westview Press. Pgs. 95 – 103

"A Rough Guide to the Regional Human Rights Systems" in *Universal Rights Group Geneva*.
https://www.universal-rights.org/human-rights-rough-guides/a-rough-guide-to-the-regional-human-rights-systems/
- Film/Documentary #3: E-Team
- Discussion Board #3 Due
- Quiz #2 Due

PART III: AREAS OF HUMAN RIGHTS
WEEK 5
Nov. 6 – 10: Environmental Law & International Criminal Law
UN News. (2021) "Access to a healthy environment, declared a human right by UN rights council" in *United Nations News*. October 8, 2021
https://news.un.org/en/story/2021/10/1102582

Bodansky, D. (2010) *The Art and Craft of International Environmental Law*. Harvard University Press. Pgs. 1 – 17

BBC (2015) "What does the International Criminal Court do?" in *BBC News* June 25, 2015
https://www.bbc.com/news/world-11809908

Cryer, R. (2018) "International Criminal Law" in *International Human Rights Law*. Oxford University Press. Pgs. 521 – 537
- Film/Documentary #4: The Human Element
- Discussion Board #4 Due

WEEK 6
Nov. 13 – 17: Refugees, Asylum Seekers & Economic, Social & Cultural Rights
O'Bryne, D. (2013) "Refugees" in *Human Rights: An Introduction*. Routledge Press. Pgs. 337 – 362

UNHCR (2022) "Refugee Data Finder" in the UN Refugee Agency.
https://www.unhcr.org/refugee-statistics/

Beaumont, P. (2021) "Decades of progress on extreme poverty now in reverse due to Covid" in The Guardian. February 3, 2021
https://www.theguardian.com/global-development/2021/feb/03/decades-of-progress-on-extreme-poverty-now-in-reverse-due-to-covid

Amnesty International (2001) "Economic, Social and Cultural Rights Questions and Answers" in *Amnestyusa.org*. Pgs. 1 – 7
- Film/Documentary #5: Human Flow
- Discussion Board #5 Due
- Quiz #3 Due

WEEK 7
Nov. 20 – 24: International Rights of Women & Transitional Justice
Offiong, A.V. (2021) "Explainer: What is femicide and how bad is it globally?" in CNN News.
https://www.cnn.com/2021/09/30/world/femicide-explainer-as-equals-intl-cmd/index.html

Otto, D. (2018) "Women's Rights" in *International Human Rights Law*. Oxford University Press. Pgs. 309 – 325

ICTJ (2022) "What is Transitional Justice" in *ICTJ.org*. Pgs. 1 – 5
- Film/Documentary #6: He Named Me Malala
- Discussion Board #6 Due
- Final Exam Description Available

PART IV: CRITICAL PERSPECTIVES ON HUMAN RIGHTS & LOCAL ISSUES
WEEK 8
Nov. 27 – Dec. 1: Critical Human Rights
Posner, E. (2014) "The case against Human Rights" in The Guardian. December 14, 2014
https://www.theguardian.com/news/2014/dec/04/-sp-case-against-human-rights
Rubel, W. (2021) "Many Afghans starting their new lives in Southern NM" in Las Cruces Bulletin. September 2, 2021

Fraga, L. & et. al (2020) "What this pandemic reveals about El Paso" in *El Paso Matters*. August 20, 2020
https://elpasomatters.org/2020/04/20/what-this-pandemic-reveals-about-el-paso/
- Quiz #4 Due
- Final Exam Description Available

WEEK 9
Dec. 4 – 8: No Readings - Final Exam
- Final Exam Due

Assignments & Exams

Evaluation

Quizzes (4)	40 points	40%
Critical Thinking Assignments (1)	15 points	15%
Discussion Board (4)	15 points	15%
Final Exam (1)	30 points	30%
TOTAL	100 points	100%

1. Quizzes (40%): There will be a total of four quizzes. The quizzes are located in the "*Quizzes*" section of Canvas. The quizzes will consist of 20 to 30 multiple-choice questions each and cover the reading materials. Quiz 1 covers readings from weeks 1 & 2; Quiz 2 covers readings from weeks 3 & 4; Quiz 3 covers readings from weeks 5 & 6; Quiz 4 covers readings from weeks 7 & 8. They are designed to test your knowledge on the reading materials AND films/documentaries. The quiz will be available to you for two weeks beginning at 12:00am Monday through Sunday at 11:59pm (with the exception of the last quiz). You will have a 1-hour limit on each of the quizzes and can complete the quiz anytime within the fourteen days (two weeks) during which it is available. The quiz schedule is as follows:
   Quiz 1: (Readings Weeks 1 & 2)
   Quiz 2: (Readings Weeks 3 & 4)
   Quiz 3: (Readings Weeks 5 & 6)
   Quiz 4: (Readings Weeks 7 & 8)

2. Assignments (15%): There will be one assignment. The assignment is geared to make you think about issues of international human rights and express these thoughts in a clear and concise manner. The writing exercise will be approximately 2 to 3 pages long (double-spaced). Descriptions of the assignment are located in the "*Assignments*" page of Canvas and will be available approximately one week before it is due. It will engage your critical thinking skills and encourage you to "think outside the box" when it comes to history and issues of crime and justice in the U.S. The

assignments will be submitted via Canvas as a Word or PDF attachment. The assignment schedule is as follows:

        Assignment Entry 1: due 10/27/23 (Due Friday by 11:59pm)

3. Discussion Board (15%): You will be required to participate in Discussion Board every week. You will have six Films/Documentaries to watch throughout the semester. There will be one Discussion Board for each of the Films/Documentaries watched (6 films/documentaries = 6 discussion Boards). Each Discussion Board is open for one week (from Sunday 12:00am to Sunday 11:59pm). You are required to respond to the Discussion Board question and respond to at least two of your classmate's comments on the Film/Documentary. The discussion board is located in the "*Discussions"* page on Canvas. The Films/Documentaries are located in the "*Films/Documentaries*" section of Canvas.

        Discussion Board #1:
        Discussion Board #2:
        Discussion Board #3:
        Discussion Board #4:
        Discussion Board #5:
        Discussion Board #6:

4. Final Exam (30%): The final exam will be a written essay. The purpose of the final exam is to allow you to not only obtain information and knowledge about international human rights, but also transition you into thinking about what you do with this knowledge. You will write a 4-7 pages double-spaced persuasive/argumentative essay. Details on the final exam are located in the "*Final Exam*" Section of Canvas and will be available approximately two weeks before the final exam is due.

        Final Exam description
        Final Exam

PLEASE NOTE: There will be no extra credit given.

Grading Criteria (points - grade range)

Letter	Point Range
A	90.0% and above
B+	87.0-89.9%
B	80.0-86.9%
C+	77.0-79.9%
C	70.0-76.9%
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Trudy Luken, Director
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Fall 2025 8-WEEK SESSION	DEADLINES
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Course Name & Section

Semester

Instructor Name

I have read, and I understand and agree to all the terms of this syllabus.

Student Name: _____ (print)

Student Signature: _____ Date: _____

New Mexico General Education Curriculum Course Certification Form

Application Number   3132

Institution and Course Information

Name of Institution	NMSU
Chief Academic Officer Name	Lakshmi Reddi
Chief Academic Officer Email	provost@nmsu.edu
Registrar Name	Gabrielle Martinez
Registrar Email	gdmart@nmsu.edu
Department	Human Rights
Prefix	HMRT
Number	2125G
Suffix	
Title	International Rights of Children
Number of Credits	3

Was this course previously part of the general education curriculum?

☐ Yes   ☒ No

Is this application for your system (ENMU, NMSU, & UNM)?

☐ Yes   ☒ No

Co-Requisite Course Information

Prefix	n/a
Number	n/a
Suffix	n/a
Title	n/a

New Mexico Common Course information

Prefix	HMRT
Number	2125G
Suffix	
Title	International Rights of Children

A. Content Area and Essential Skills

To which content area should this course be added? *Indicate "Other" if the course is not associated with one of the six NM General Education content areas.*

☐ Communications   ☐ Mathematics   ☐ Science   ☒ Social & Behavioral Sciences   ☐ Humanities   ☐ Creative & Fine Arts   ☐ Flex

Which essential skills will be addressed?

☒ Communication   ☒ Critical Thinking   ☐ Information & Digital Literacy

☐ Quantitative Reasoning   ☒ Personal & Social Responsibility

B. Learning Outcomes

List all common course student learning outcomes for the course.

1   Understand the history and origins of child protection in international human rights law.
2   Identify key concepts of children's rights theory in international human rights law.
3   Describe major international human rights law established for the protection of children.
4   Understand how international rights of children addresses issues in child exploitation and abuse related to child labor and child trafficking.
5   Explain the rights of children during armed conflict and war.
6   Identify the rights of children to the right to truth.
7   Critically examine the what the future of international rights of children entails when incorporating an understanding of human rights law.
8   Gain a better understanding of your own worldviews and opinions towards the international rights of children.

List all institution-specific Student Learning Outcomes that are common to all course sections offered at the institutions regardless of instructor.

n/a

C. Narrative

In the boxes provided, write a short (~300 words) narrative explaining how the course weaves the essential skills associated with the content area throughout the course. Explain what students are going to do to develop the essential skills and how you will assess their learning. The narrative should be written with a general audience in mind and avoid discipline specific jargon as much as possible.

Be sure to address the component skills listed next to each essential skill. The number of component skills that must be addressed by your narrative is listed.

Communication. *Genre and Medium Awareness, Application and Versatility; Strategies for Understanding and Evaluating Messages; and Evaluation and Production of Arguments.*
For this course, developing communication skills in oral, written, and digital communications, including interchanges of symbolism or signage through interpersonal exchanges and group and public communication. Learning outcomes include logical explanations, analysis and select appropriate ethical communication strategies, and identifying supporting citations supporting information. This course strengthens students' academic proficiencies and equips them to engage in the job market after their studies. Additional communication aptitudes this course demonstrates are how messages, exchanges of ideas, and opinions are received. This course by implementing positive communication settings creates encouraging learning strategies for students.

Critical Thinking. *Problem Setting; Evidence Acquisition; Evidence Evaluation; and Reasoning/Conclusion*
HMRT 2125G International Rights of Children is a course that features a curriculum that integrates the four components of the General Education criterion of Critical Thinking, i. Problem Setting, ii. Evidence Acquisition, iii. Evidence Evaluation, iv. Reasoning/Conclusion.   Problem Solving: Through assigned readings and a sequence of assignments, students are provided questions requiring critical inquiry and analysis. Students are required to address issues related to the rights of children locally, nationally, and internationally and to formulate and support arguments in response to related research questions.   Evidence Acquisition: A central component of all written- and project-based assignments is the requirement for primary and secondary source research. Students will engage in library and web-based research.   Evidence Evaluation: Assignments will integrate the practice of rhetorical evaluation of resources. Students will evaluate secondary sources with attention to authorship, publication venue, strategies of audience engagement, and effective organization, integration of sources, and style.   Reasoning/Conclusion: Students will practice strategies of critical reading, writing, and project creation. To successfully complete assignments students will synthesize reading materials, secondary source search and critical analysis.

Quantitative Reasoning. *Communication/Representation of Quantitative Information; Analysis of Quantitative Arguments; and Application of Quantitative Models*

Personal & Social Responsibility. *Intercultural reasoning and intercultural competence; Sustainability and the natural and human worlds; Ethical reasoning; Collaboration skills, teamwork and value systems; and Civic discourse, civic knowledge and engagement – local and global*
1. Intercultural reasoning and intercultural competence is meant to support effective and appropriate interaction in a variety of cultural contexts. This course provides an opportunity to consider human rights in the local and global context as well as social and political policy in the broader realm of the U.S. as a nation state.   2. Sustainability and the natural and human worlds: Current trends in environmental degradation from human activities, complicated by international borders, is accelerating at a rate that is not sustainable. This course addresses how children are impacted by this degradation and foregrounds how principles, policies, and practices attend to this acceleration, especially as it concerns children.   3. Ethical Reasoning: This course addresses how colonization impacted the development and historical evolution of children's rights locally and around the globe.   4. Collaboration skills teamwork and value systems: One of the benefits of developing collaboration skills, teamwork and value systems is that students (even with vastly different skill sets) can mentor and teach each other their skills. This course incorporates this by centering discussion as an essential epistemological method.   5. Civic discourse, civic knowledge and engagement – local and global: An essential component of this class is a requirement that students become knowledgeable and engage in civic affairs. After exploring the history and origins of child protection in international human rights law, students will then critically examine how the rights of children are affected during armed conflict and war, as well as the future of international rights of children. This is achieved through both assignments and discussions.

Information & Digital Literacy. *Authority and Value of Information; Digital Literacy; Information Structure; and Research as Inquiry*

D. Assessment (Must be on file with HED by August 1, 2019)

Link to Institution's General Education Assessment Plan	https://gened.nmsu.edu/recertification-and-assessment/Institutional-GE-Assessment-Plan.pdf

HMRT 2125G International Rights of Children

Sample Assignment

INTRODUCTION: The purpose of the final exam is to allow you to not only obtain information and knowledge about rights of children, but also transition you into thinking about what you do with this knowledge. You will write a (4-7 pages double-spaced) persuasive/argumentative essay. A persuasive/argumentative essay uses reason to show that one idea is more legitimate than another idea. It attempts to persuade a reader to adopt a certain point of view or to take a particular action. This type of essay must present evidence, facts, empirical data, statistics, theories, or examples, in order to defend one's claims. You are required to use information you have gathered from your readings over the course of the semester. Outside research is welcomed, but you will be graded on how well you summarize, integrate, and utilize information from the required readings from this course.

ESSAY QUESTION: You have been named High Commissioner for Human Rights for the Office of the United Nations High Commissioner for Human Rights. Congratulations. You are to present to the UN General Assembly on the International Rights of Children. They have asked you to write a report prior to your presentation (persuasive argument) arguing whether international children's rights are important to protect. To defend your position you must address the following questions: 1) What are children's rights? 2) Why are children's rights violated in some places? 3) What is the UN Convention on the Rights of Children? and 4) How does the Convention project children's rights? You will be graded on your ability to connect the required readings from class to your argument. Again congratulations and good luck.

DIRECTIONS: Please submit your Final Exam Essay (4 to 7 pages double-spaced) as a Word or Pdf document in the final exam section.

ASSIGNMENT GUIDELINES
The guidelines for the assignments are as follows:
- 4-7 pages in length
- Double-spaced
- Using Times New Roman 12pt Font
- Please no messing with the margins
- Formal grammar, syntax and organization are expected
- Citations are required using the APA or MLA format

PERSUASIVE/ARGUMENTATIVE ESSAY INFORMATION
Steps:
1. Write your thesis statement
2. Gather background information on the topic (from readings)
3. Gather and organize evidence
4. Connect supporting evidential claims
5. Anticipate counterarguments

6. Refute arguments opposed to your view
7. Conclude by restating your argument and thesis

Structure:
Introduction
   Thesis Statement
   Background Information
Body
   Supporting Evidence #1
   Supporting Evidence #2
   Supporting Evidence #3
   Counterargument
Conclusion
   Restate and readdress Thesis Statement

Tips:
• Provide a clear, concise, and defined thesis statement in the introduction
• Include clear and logical transitions between the introduction, body, and conclusion
• Provide background information in order to describe the issue at hand
• Give concrete examples for your supporting evidence
• Conclusion does not simply restate the thesis, but readdresses it in light of the evidence provided

HMRT 2125G: International Rights of Children
New Mexico State University
Online Course

Name	Dr. Nicholas D. Natividad
Email	ndn@nmsu.edu
Telephone	(575) 646-4661
Office	Breland Hall 104

Instructor Office Hours

Online Office Hours:
- Tuesdays & Wednesdays, 2:00pm – 4:00pm

I am also available to meet by appointment.

Required Textbook(s)

Title	Author	Edition	ISBN
None			

All additional readings will be provided online through Canvas.

Textbooks can be purchased online (www.**nmsubookstore**.com) through the New Mexico State University Bookstore. Textbooks can also be purchased through the campus bookstore located at 1400 E University Ave, Las Cruces, NM 88001.

Course Description

This course examines the history, sources and role of international rights of children in the protection of children worldwide. It provides an understanding of international legal regulatory framework implemented to address the rights of children. The course is broken into two parts. The first part covers the history and development of international rights of children and explores key concepts from children's rights theory. This section also covers current international legal mechanisms in place to protect children worldwide. The second section covers issues in the protection of children's rights. Issues covered include: child labor, child trafficking, armed conflict, war, the right to truth. Lastly the course covers the future of international rights of children.

Course Objectives

The learning outcomes of the course are as follows
You should be able to:
1. Understand the history and origins of child protection in international human rights law
2. Identify key concepts of children's rights theory in international human rights law
3. Describe major international human rights law established for the protection of children
4. Understand how international rights of children addresses issues in child exploitation and abuse related to child labor and child trafficking
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7. Critically examine the what the future of international rights of children entails when incorporating an understanding of human rights law
8. Gain a better understanding of your own worldviews and opinions towards the international rights of children

Schedule

PART I: THEORY & HISTORY
WEEK 1
Oct. 9 – 13: Introduction
UNICEF. (2023) "History of Child Rights" in *UNICEF.org*

Human Rights Watch (2022) "How Do U.S. States Measure Up on Child Rights?" In *Human Rights Watch*.

WEEK 2
Oct. 16 – 20: Children's Rights Theory
Manfried L. (2018) "Welfare or Agency? Children's Interests as Foundation of Children's Rights" in *International Journal of Children's Rights* (26) 597 – Section 2.3 'Criteria of Children's Interests'.

Harry S. (2018) "Towards a New Improved Pedagogy of 'Children's Rights and Responsibilities'" in *International Journal of Children's Rights*. (26) 761
- Film/Documentary #1
- Discussion Board #1 Due
- Quiz #1 Due

WEEK 3
Oct. 23 – 27: International Law and Child Protection
Falch-Eriksen, A. & Backe-Hansen, E. (2018) *Human Rights in Child Protection: Implications for Professional Practice and Policy*. Springer Link.
- Film/Documentary #2
- Discussion Board #2 Due

- Critical Thinking Assignment #1 Due

PART II: ISSUES IN INTERNATIONAL RIGHTS OF CHILDREN
WEEK 4
Oct. 30 – Nov. 3: Child Labor
Arat, C. (2002) "Analyzing Child Labor as a Human Rights Issue: Its Causes, Aggravating Policies, and Alternative Proposals" in *Human Rights Quarterly.* (24) 177
- Film/Documentary #3
- Discussion Board #3 Due
- Quiz #2 Due

WEEK 5
Nov. 6 – 10: Child Trafficking
Faulkner, E. (2023) "Child Trafficking, Children's Rights, and Modern Slavery: International Law in the Twentieth and Twenty-First Centuries." In *Transnational Crime, Crime Control and Security*. Springer Link.
- Film/Documentary #4
- Discussion Board #4 Due

WEEK 6
Nov. 13 – 17: Armed Conflict & War
Haer, R. (2018). "Children and Armed Conflict: Looking at the Future and Learning from the Past." In *Third World Quarterly*. Volume 40 (1)
- Film/Documentary #5
- Discussion Board #5 Due
- Quiz #3 Due

WEEK 7
Nov. 20 – 24: The Right to Truth
Corriero, M. (2002) "The Involvement and Protection of Children in Truth and Justice-Seeking Processes: The Special Court for Sierra Leone" in *New York Law* 18
- Film/Documentary #6
- Discussion Board #6 Due
- Final Exam Description Available

WEEK 8
Nov. 27 – Dec. 1: Future of International Children's Rights
Tobin J. (2015) "Understanding Children's Rights: A Vision beyond Vulnerability" 84 Nordic Journal of International Law 155
- Final Exam
- Quiz #4 Due

Assignments & Exams

Evaluation

Quizzes (4)	40 points	40%
Critical Thinking Assignments (1)	15 points	15%
Discussion Board (4)	15 points	15%
Final Exam (1)	30 points	30%
TOTAL	100 points	100%

1. Quizzes (40%): There will be a total of four quizzes. The quizzes are located in the "*Quizzes*" section of Canvas. The quizzes will consist of 20 to 30 multiple-choice questions each and cover the reading materials. Quiz 1 covers readings from weeks 1 & 2; Quiz 2 covers readings from weeks 3 & 4; Quiz 3 covers readings from weeks 5 & 6; Quiz 4 covers readings from weeks 7 & 8. They are designed to test your knowledge on the reading materials AND films/documentaries. The quiz will be available to you for two weeks beginning at 12:00am Monday through Sunday at 11:59pm (with the exception of the last quiz). You will have a 1-hour limit on each of the quizzes and can complete the quiz anytime within the fourteen days (two weeks) during which it is available. The quiz schedule is as follows:
   - Quiz 1: (Readings Weeks 1 & 2)
   - Quiz 2: (Readings Weeks 3 & 4)
   - Quiz 3: (Readings Weeks 5 & 6)
   - Quiz 4: (Readings Weeks 7 & 8)

2. Assignments (15%): There will be one assignment. The assignment is geared to make you think about issues of international rights of children and express these thoughts in a clear and concise manner. The writing exercise will be approximately 2 to 3 pages long (double-spaced). Descriptions of the assignment are located in the "*Assignments"* page of Canvas and will be available approximately one week before it is due. It will engage your critical thinking skills and encourage you to "think outside the box" when it comes to space law and human rights. The assignments will be submitted via Canvas as a Word or PDF attachment. The assignment schedule is as follows:
   - Assignment Entry 1: (Due Friday by 11:59pm)

3. Discussion Board (15%): You will be required to participate in Discussion Board every week. You will have six Films/Documentaries to watch throughout the semester. There will be one Discussion Board for each of the Films/Documentaries watched (6 films/documentaries = 6 discussion Boards). Each Discussion Board is open for one week (from Sunday 12:00am to Sunday 11:59pm). You are required to respond to the Discussion Board question and respond to at least two of your classmate's comments on the Film/Documentary. The discussion board is located in the "*Discussions"* page on Canvas. The Films/Documentaries are located in the "*Films/Documentaries*" section of Canvas.
   - Discussion Board #1:
   - Discussion Board #2:
   - Discussion Board #3:
   - Discussion Board #4:

Discussion Board #5:
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Student Signature Page

Course Name & Section

Semester

Instructor Name

I have read, and I understand and agree to all the terms of this syllabus.

Student Name: _____ (print)

Student Signature: _____ Date: _____

NEW MEXICO
HIGHER EDUCATION
DEPARTMENT
Fostering Student Success from Cradle to Career

Michelle Lujan Grisham, *Governor*
Stephanie M. Rodriguez, *Cabinet Secretary*
Patricia Trujillo, *Deputy Secretary*

New Mexico General Education Curriculum Course Certification Form

Application Number   3133

Institution and Course Information

Name of Institution	NMSU
Chief Academic Officer Name	Lakshmi Reddi
Chief Academic Officer Email	provost@nmsu.edu
Registrar Name	Gabrielle Martinez
Registrar Email	gdmart@nmsu.edu
Department	Human Rights
Prefix	HMRT
Number	2175G
Suffix	
Title	Border Justice & Human Rights
Number of Credits	3

Was this course previously part of the general education curriculum?

☐ Yes   ☒ No

Is this application for your system (ENMU, NMSU, & UNM)?

☐ Yes   ☒ No

Co-Requisite Course Information

Prefix	n/a
Number	n/a
Suffix	n/a
Title	n/a

New Mexico Common Course information

Prefix	HMRT
Number	2175G
Suffix	
Title	Border Justice & Human Rights

A. Content Area and Essential Skills

To which content area should this course be added? *Indicate "Other" if the course is not associated with one of the six NM General Education content areas.*

☐ Communications   ☐ Mathematics   ☐ Science   ☐ Social & Behavioral Sciences

☒ Humanities   ☐ Creative & Fine Arts   ☐ Flex

Which essential skills will be addressed?

☐ Communication   ☒ Critical Thinking   ☒ Information & Digital Literacy

☐ Quantitative Reasoning   ☒ Personal & Social Responsibility

B. Learning Outcomes

List all common course student learning outcomes for the course.

1	Explain the historical evolution of border drawing along the U.S.-Mexico border and throughout the world.
2	Identify how colonization impacted the development of border regions.
3	Understand how identity is informed by migration and belonging in the U.S.-Mexico border region.
4	Describe how increased border enforcement and immigrant criminalization has impacted the U.S.-Mexico border region.
5	Understand how drug wars, human trafficking and gendered violence impacts the U.S.-Mexico border.
6	Describe past and current human rights violations taking place along the U.S.-Mexico border and at other borders throughout the world.
7	Understand how transnational advocacy groups and other social movements advocating for human rights have impacted border regions.
8	Gain a better understanding of your own worldviews and opinions towards the U.S.-Mexico border and human rights.

List all institution-specific Student Learning Outcomes that are common to all course sections offered at the institutions regardless of instructor.

n/a

C. Narrative

In the boxes provided, write a short (~300 words) narrative explaining how the course weaves the essential skills associated with the content area throughout the course. Explain what students are going to do to develop the essential skills and how you will assess their learning. The narrative should be written with a general audience in mind and avoid discipline specific jargon as much as possible.

Be sure to address the component skills listed next to each essential skill. The number of component skills that must be addressed by your narrative is listed.

Communication. *Genre and Medium Awareness, Application and Versatility; Strategies for Understanding and Evaluating Messages; and Evaluation and Production of Arguments.*

Critical Thinking. *Problem Setting; Evidence Acquisition; Evidence Evaluation; and Reasoning/Conclusion*
HMRT 2175G: Border Justice & Human Rights is a course that features a curriculum that integrates the four components of the General Education criterion of Critical Thinking, i. Problem Setting, ii. Evidence Acquisition, iii. Evidence Evaluation, iv. Reasoning/Conclusion.

Problem Solving: Through assigned readings and a sequence of assignments, students are provided questions requiring critical inquiry and analysis. Students are required to address issues related to border justice, law, and human rights and to formulate and support arguments in response to related research questions.

Evidence Acquisition: A central component of all written- and project-based assignments is the requirement for primary and secondary source research. Students will engage in library and web-based research.

Evidence Evaluation: Assignments will integrate the practice of rhetorical evaluation of resources. Students will evaluate secondary sources with attention to authorship, publication venue, strategies of audience engagement, and effective organization, integration of sources, and style.

Reasoning/Conclusion: Students will practice strategies of critical reading, writing, and project creation. To successfully complete assignments students will synthesize reading materials, secondary source search and critical analysis.

Quantitative Reasoning. *Communication/Representation of Quantitative Information; Analysis of Quantitative Arguments; and Application of Quantitative Models*

Personal & Social Responsibility. *Intercultural reasoning and intercultural competence; Sustainability and the natural and human worlds; Ethical reasoning; Collaboration skills, teamwork and value systems; and Civic discourse, civic knowledge and engagement – local and global*

1. Intercultural reasoning and intercultural competence is meant to support effective and appropriate interaction in a variety of cultural contexts. This course provides an opportunity to consider border justice, law, and human rights in the local and global context as well as social and political policy in the broader realm of the U.S. as a nation state.

2. Sustainability and the natural and human worlds: Current trends in environmental degradation from human activities, complicated by international borders, is accelerating at a rate that is not sustainable. This course addresses how human rights foregrounds how principles, policies, and practices attend to this acceleration

3. Ethical Reasoning: This course addresses how colonization impacted the development and historical evolution of laws regarding borders locally and around the globe. It also addresses how increased border enforcement and the criminalization of immigrants has impacted border regions and justice issues.

4. Collaboration skills teamwork and value systems: One of the benefits of developing collaboration skills, teamwork and value systems is that students (even with vastly different skill sets) can mentor and teach each other their skills. This course incorporates this by centering discussion as an essential epistemological method.

5. Civic discourse, civic knowledge and engagement – local and global: An essential component of this class is a requirement that students become knowledgeable and engage in civic affairs. After exploring the history of border drawing and its impact on populations, students then examine how border identity development is impacted by violence, community building, and contested spaces. They will also examine how social movements and human rights advocacy impacts the protection of rights for those living along the border. This is achieved through both assignments and discussion.

Information & Digital Literacy. *Authority and Value of Information; Digital Literacy; Information Structure; and Research as Inquiry*

i. Authority and Value of Information: This course strengthens students' informational skills by encouraging them to identify possible motives and intentions of multimodal texts. The course provides students with the tools to engage in discussion, to understand compositional choices made by cultural producers across modes, and to compare strategies in required reading materials.

ii. Digital Literacy: The course strengthens students' digital literacy skills, teaching them to recognize diverse agendas and identify tones and biases and instilling productivity, communication, and assistive tools.

iii. Information Structure: Teaching research as inquiry asks students increasingly complex questions and asks them to develop additional questions of their own.

iv. Research as Inquiry: Teaching research as inquiry asks students increasingly complex questions and asks them to develop additional questions of their own. Students will discover and refine critical concepts in Human Rights and understand the processes and approaches to Human Rights research.

D. Assessment (Must be on file with HED by August 1, 2019)

Link to Institution's General Education Assessment Plan	https://gened.nmsu.edu/recertification-and-assessment/Institutional-GE-Assessment-Plan.pdf

HMRT 2175G: *Border Justice & Human Rights* (3 credits)

Sample Assignment

CRITICAL THINKING ASSIGNMENT

Despite statistical data and numerous studies on the effects of immigration, there is still much misinformation on the impact of immigration in the U.S. Myths have always been perpetuated about immigrants in the U.S. The second writing assignment is geared toward making you think about ways that these myths have been perpetuated in your own lives. The writing assignment is easy and straightforward.

First you must take the PBS Immigration Myths and Realities Quiz, to access the quiz CLICK HERE Links to an external site.. Next review the Top 10 Immigration Myths and Facts document CLICK HERE Download CLICK HERE. Next you will write a two page (300 to 600 word count) personal reflection addressing the following questions:

1. Which myths did you believe were facts prior to reading the PDF or taking the PBS Myths and Realities quiz?

2. Which myths are the ones most circulated in the U.S. today? Explain why you think they are more circulated than others?

3. How are the myths linked to the political debate about immigration at the national level?

Please note: This is a personal reflection so feel free to engage these questions with honesty and sincerity, these assignments will not be shared with anyone.

ASSIGNMENT GUIDELINES

The assignment will be submitted online via Webcampus. Please submit the assignment as a Word (.doc or .docx) document or as a PDF attachment (to submit below click add attachment) The guidelines for the assignments are as follows:

--2 pages in length or 300 to 600 word count

--Double-spaced

--Using Times New Roman 12pt Font

--Please no messing with the margins

--Formal grammar, syntax and organization are expected

--Book and Article References are not required unless otherwise noted

HMRT 2175G: Border Justice and Human Rights
New Mexico State University
Online Course

Name	Dr. Nicholas D. Natividad
Email	ndn@nmsu.edu
Telephone	(575) 646-4661
Office	Breland Hall 104

Instructor Office Hours

Online Office Hours:
- Tuesdays & Wednesdays, 2:00pm – 4:00pm

I am also available to meet by appointment.

Required Textbook(s)

Title	Author	Edition	ISBN
None			

All readings will be provided online through Canvas.

Textbooks can be purchased online (www.**nmsubookstore**.com) through the New Mexico State University Bookstore. Textbooks can also be purchased through the campus bookstore located at 1400 E University Ave, Las Cruces, NM 88001.

Recommended Textbook(s)

❖ Slack, J. (2018) *The shadow of the wall: Violence and migration on the U.S.-Mexico border.* University of Arizona Press.

❖ Staudt, K., Payan, T., & Kruszewski, Z.A. (2009) *Human rights along the U.S.–Mexico border: Gendered violence and insecurity.* University of Arizona Press. 3rd Ed.

This course examines the human rights implications of border practices, migration/refugee patterns, and environmental degradation set amidst increasingly contentious territorial politics, complex population movements, and record-shattering climate change events. Additionally, the course provides context to justice along the U.S/Mexico border as seen through a human rights lens. It examines issues of border conflict around the world. It also explores the history of the U.S.-Mexico border and examines historical and contemporary human rights issues impacting the region. The course is broken into three parts. The first part provides an introduction to the history of the U.S.-Mexico border region. This includes exploring the history of border drawing and its impact on populations living along the border. The second section examines the long history of violence along borders. It examines how border identities develop over time in the midst of violence, community building, and the contested spaces of borders. It also explores how drugs, immigration, and free trade has impacted border regions. Lastly after understanding the history and issues of violence along borders, the last section explores human rights issues of border regions. This section examines how social movements and human rights advocacy have impacted the protection of rights of communities living along borders.

Course Objectives

The learning outcomes of the course are as follows
You should be able to:
1. Explain the historical evolution of border drawing along the U.S.-Mexico border
2. Identify how colonization impacted the development of the border region
3. Understand how identity is informed by migration and belonging in the U.S.-Mexico border region
4. Describe how increased border enforcement and immigrant criminalization has impacted the border region
5. Understand how drug wars, human trafficking and gendered violence impacts the U.S.-Mexico border
6. Describe past and current human rights violations taking place along the U.S.-Mexico border.
7. Understand how transnational advocacy groups and other social movements advocating for human rights have impacted the region
8. Gain a better understanding of your own worldviews and opinions towards the U.S.-Mexico border and human rights

Schedule

PART I: HISTORY
WEEK 1
Introduction
Little, B. (2019) "Violent History of the U.S.-Mexico Border" in History. March 14, 2019
https://www.history.com/news/mexico-border-wall-military-facts

Ganster, P. & Lorey, D. E. (2008) The U.S.-Mexican Border into the Twenty-First Century. Rowman & Littlefield Publishers. 2nd Ed. xv – xxiii

WEEK 2
History – Critical Geography of the Border
Bauder, H. (2011) Toward a Critical Geography of the Border: Engaging the Dialectic of Practice and Meaning" in the *Annals of the Association of American Geographers*. pgs. 1126 – 1139
- Film/Documentary #1
- Discussion Board #1 Due
- Quiz #1 Due

WEEK 3
History - When Borders Cross Peoples
Chavez, J. (2013) "When Borders Cross Peoples: The Internal Colonial Challenge to the Borderlands Theory." *In the Journal of Borderland Studies*. 28(1)
- Film/Documentary #2
- Discussion Board #2 Due
- Critical Thinking Assignment #1 Due

PART II: BORDER IDENTITY, VIOLENCE & JUSTICE
WEEK 4
Migration, Identity & Belonging
Madsen, K. D. & van Naerssen, T. (2011) "Migration, Identity, and Belonging" *In the Journal of Borderland Studies*. 18(1).
https://www.routledge.com/Migration-Identity-and-Belonging-Defining-Borders-and-Boundaries-of-the-Homeland/Franz-Silva/p/book/9781032400686
- Film/Documentary #3
- Discussion Board #3 Due
- Quiz #2 Due

WEEK 5
The Three U.S.-Mexico Border Wars
Payan, T. (2006) The Three U.S.- Mexico Border Wars: Drugs, Immigration, and Homeland Security. Praeger. (Excerpt)

Puyana, J.C. et. al. (2017) "Drugs, Violence, and Trauma in Mexico and the USA" in *Medical Principles and Practice*. 26: pgs. 309-315
https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5768117/
- Film/Documentary #4
- Discussion Board #4 Due

WEEK 6
The Border and Violence

Orrenius P.M. & Coronado, R. (2005) "The Effect of Illegal Immigration and Border Enforcement on Crime Rates along the U.S.-Mexico Border." In the Center for Comparative Immigration Studies https://ccis.ucsd.edu/_files/wp131.pdf

Slack, J. et. al. (2016) "The Geography of Border Militarization: Violence, Death and Health in Mexico and the United States." In the Journal of Latin American Geography, 15 (1). Pgs. 7-32
https://www.jstor.org/stable/pdf/43964648.pdf?refreqid=fastly-default%3Acfc633f6b0d090b00bd83827d879ff74&ab_segments=&origin=&initiator=&acceptTC=1
- Film/Documentary #5
- Discussion Board #5 Due
- Quiz #3 Due

PART III: HUMAN RIGHTS
WEEK 7
Human Rights
Staudt, K., Payan, T., & Kruszewski, Z.A. (2009) *Human Rights along the U.S.–Mexico Border: Gendered Violence and Insecurity.* University of Arizona Press. 3rd Ed. Chapters 1-3
- Film/Documentary #6
- Discussion Board #6 Due
- Final Exam Description Available

WEEK 8
Human Rights
Staudt, K., Payan, T., & Kruszewski, Z.A. (2009) *Human Rights along the U.S.–Mexico Border: Gendered Violence and Insecurity.* University of Arizona Press. 3rd Ed. Chapters 6-8
- Final Exam Due
- Course Project Due
- Quiz #4 Due

Assignments & Exams

Evaluation

Quizzes (4)	40 points	40%
Course Project (1)	15 points	15%
Discussion Board (4)	15 points	15%
Final Exam (1)	30 points	30%
TOTAL	100 points	100%

1. Quizzes (40%): There will be a total of four quizzes. The quizzes are located in the "*Quizzes*" section of Canvas. The quizzes will consist of 20 to 30 multiple-choice questions each and cover the reading materials. Quiz 1 covers readings from weeks 1 & 2; Quiz 2 covers readings from weeks 3 & 4; Quiz 3 covers readings from weeks 5 & 6; Quiz 4 covers readings from weeks 7 & 8. They are designed to test your

knowledge on the reading materials AND films/documentaries. The quiz will be available to you for two weeks beginning at 12:00am Monday through Sunday at 11:59pm (with the exception of the last quiz). You will have a 1-hour limit on each of the quizzes and can complete the quiz anytime within the fourteen days (two weeks) during which it is available. The quiz schedule is as follows:

> Quiz 1: (Readings Weeks 1 & 2)
> Quiz 2: (Readings Weeks 3 & 4)
> Quiz 3:   (Readings Weeks 5 & 6)
> Quiz 4:   (Readings Weeks 7 & 8)

2. Course Project (15%): There will be one course project. The course project is geared to make you think about issues of borders, justice and human rights and express these thoughts in a clear and concise manner. Based on the assigned readings, documentaries, and discussions with classmates you will create a visual project focusing on one border in the world and present your findings. Description of the project is located in the "Project" page of Canvas and will be available approximately two weeks before it is due. It will engage your critical thinking skills and encourage you to "think outside the box." The project presentation will be submitted via Canvas as a Powerpoint or Prezi or Canva attachment. The project schedule is as follows:

> Assignment Entry 1: (Due Friday by 11:59 pm)

3. Discussion Board (15%): You will be required to participate in the Discussion Board every week. You will have six Films/Documentaries to watch throughout the semester. There will be one Discussion Board for each of the Films/Documentaries watched (6 films/documentaries = 6 discussion Boards). Each Discussion Board is open for one week (from Sunday 12:00 am to Sunday 11:59pm). You are required to respond to the Discussion Board question and respond to at least two of your classmate's comments on the Film/Documentary. The discussion board is located in the "*Discussions' ' page* on Canvas. The Films/Documentaries are located in the "*Films/Documentaries*'' section of Canvas.

> Discussion Board #1:
> Discussion Board #2:
> Discussion Board #3:
> Discussion Board #4:
> Discussion Board #5:
> Discussion Board #6:

4. Final Exam (30%): The final exam will be a written essay. The purpose of the final exam is to allow you to not only obtain information and knowledge about human rights along the U.S.-Mexico border, but also transition you into thinking about what you do with this knowledge. You will write a 4-7 pages double-spaced persuasive/argumentative essay. Details on the final exam are located in the "*Final Exam*" Section of Canvas and will be available approximately two weeks before the final exam is due.

> Final Exam   (Due Wednesday by 11:59pm)

PLEASE NOTE: There will be no extra credit given.

Grading Criteria (points - grade range)

Letter	Point Range
A	90.0% and above
B+	87.0-89.9%
B	80.0-86.9%
C+	77.0-79.9%
C	70.0-76.9%
D	65.0-69.9%
F	64.9% and below

The grading scale is based on the following standard:
- A = Indicates outstanding performance, including a very thorough knowledge and understanding of the material, superior critical thinking, and original thoughts that are clearly expressed. You have completed all assignments and they have been among the best in the class.
- B = Indicates good performance, including a solid knowledge and understanding of the material and good critical thinking skills. Ideas should be clearly expressed. You have completed all assignments and they have been of good quality.
- C = Indicates satisfactory performance, including basic knowledge of major concepts from the course and some critical thinking. You have completed all or most of the assignments and they have generally been free of significant problems.
- D = Indicates unsatisfactory performance, including a limited understanding of the material and little critical thinking. You have failed to complete some assignments or they have routinely had serious problems.
- F = Indicates failing performance, including failure to learn a sufficient proportion of basic concepts and ideas from the course. You have failed to complete many assignments or they have routinely had serious problems.

Students with Disabilities

Section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act Amendments Act (ADAAA) covers issues relating to disability and accommodations. If a student has questions or needs an accommodation in the classroom (all medical information is treated confidentially), contact:

Main Campus
Student Accessibility Services (SAS)
Corbett Center Student Union Room 208
Trudy Luken, Director

575-646-6840
sas@nmsu.edu

New Mexico State University, in compliance with applicable laws and in furtherance of its commitment to fostering an environment that welcomes and embraces diversity, does not discriminate on the basis of age, ancestry, color, disability, gender identity, genetic information, national origin, race, religion, retaliation, serious medical condition, sex (including pregnancy), sexual orientation, spousal affiliation, or protected veteran status in its programs and activities, including employment, admissions, and educational programs and activities. Inquiries may be directed to the Laura Castille, Executive Director, Title IX and Section 504 Coordinator, Office of Institutional Equity, P.O. Box 30001, E. 1130 University Avenue, Las Cruces, NM 88003; 575.646.3635; 575-646-7802 (TTY); **equity@nmsu.edu**.

Title IX prohibits sex harassment, sexual assault, intimate partner violence, stalking and retaliation. For more information on discrimination or Title IX, or to file a complaint contact:

William Nutt, Executive Director and Title IX Coordinator
Office of Institutional Equity (OIE) – O'Loughlin House, 1130 University Avenue
Phone: (575) 646-3635
E-mail: **equity@nmsu.edu**
Website: **http://equity.nmsu.edu/**

Plagiarism and Cheating

Do not cheat.
Plagiarism involves directly quoting, summarizing, or paraphrasing the work of others without specific indication of sources, or handing in work that is not the student's own.

Cheating is the unauthorized giving or receiving of information in examinations or other exercises. All assignments, quizzes, and exams, for both in-person and online classes, are to be completed by each student individually, unless otherwise documented by the instructor. The use of books, notes, mobile devices, or other reference materials and/or collaboration with other students is strictly prohibited on all quizzes and exams unless specific permissions have been given by the professor. Deviation from this rule is considered cheating.

Intentional and unintentional instances of plagiarism are considered instances of academic misconduct and are subject to disciplinary action such as failure on the assignment, failure of the course or dismissal from the university. The NMSU Library has more information and help on how to avoid plagiarism at http://lib.nmsu.edu/plagiarism/

For comprehensive instructions, students may refer to the following printed references:
APA Publication Manual: http://www.apastyle.org/manual/index.aspx

Tolerance and Civility Commitment

Each member of the New Mexico State University community is responsible for fostering an atmosphere imbued with dignity, respect, tolerance, appreciation of diversity and positive regard for all members of our collegiate community. A fundamental tenet of the University's mission is to nurture a community atmosphere free from racism, religious intolerance, sexism, ageism, homophobia, harassment, discrimination against those with disabling conditions, or discrimination based upon an individual's political views or beliefs. Within this context, all members of the University community are accountable for their own behavior and actions. The University will not tolerate behavior that violates or infringes upon the civil and statutory rights of any individual or group. As members of our NMSU community, each of us can feel free to express ourselves in ways that promote openness within a diverse society.

Academic and non-academic misconduct: The Student Code of Conduct defines academic misconduct, non-academic misconduct and the consequences or penalties for each. The Student Code of Conduct is available in the NMSU Student Handbook online: **http://studenthandbook.nmsu.edu/**
Academic misconduct is explained here:
http://studenthandbook.nmsu.edu/student-code-of-conduct/academic-misconduct/

Online Etiquette

All students should also follow proper etiquette when communicating in an online environment. Often referred to as "netiquette," an outline of these universal practices can be found at: http://www.netmanners.com/email-etiquette/email-etiquette-101/

Academic Calendar

A copy of the campus academic calendar can be found at:
https://nmsu.edu/academic-calendars/

Important Registrar's Office Dates for Fall 8-Week Term 2025:

Fall 2023 8-WEEK SESSION	DEADLINES
CLASSES BEGIN	
Last day to add a class without instructor's signature	
Last day to add a class with instructor's signature	
Last day to Withdraw From a Single Course With a "W" (no refund)	
Thanksgiving Break	

LAST DAY OF CLASSES	

Other NMSU Resources:

NMSU Police Department:	(575) 646-3311	**www.nmsupolice.com**
NMSU Police Victim Services:	(575) 646-3424	
NMSU Counseling Center:	(575) 646-2731	
NMSU Dean of Students:	(575) 646-1722	
For Any On-campus Emergencies:	911	

Please Note

I understand that some students work full-time during the semester. I am willing to work with anyone's schedule and time constraints. The most important part of this class is that we collaborate together to make this an enjoyable experience. If there is anything I can do to assist you, please do not hesitate to contact me.

Student Signature Page

Course Name & Section

Semester

Instructor Name

I have read, and I understand and agree to all the terms of this syllabus.

Student Name: _____ (print)

Student Signature: _____ Date: _____

NEW MEXICO
HIGHER EDUCATION
DEPARTMENT
Fostering Student Success from Cradle to Career

Michelle Lujan Grisham, *Governor*
Stephanie M. Rodriguez, *Cabinet Secretary*
Patricia Trujillo, *Deputy Secretary*

New Mexico General Education Curriculum Course Certification Form

Application Number | 2630 |

Institution and Course Information

Name of Institution	Luna Community College
Chief Academic Officer Name	Karen Torres
Chief Academic Officer Email	ktorres@luna.edu
Registrar Name	Alicia Chacon
Registrar Email	achacon@luna.edu
Department	STEM
Prefix	BIOL
Number	2110
Suffix	
Title	Principles of Biology: Cellular and Molecular Biology
Number of Credits	3

Was this course previously part of the general education curriculum?

☒ Yes   ☐ No

Is this application for your system (ENMU, NMSU, & UNM)?

☐ Yes   ☒ No

Co-Requisite Course Information

Prefix	n/a
Number	n/a
Suffix	n/a
Title	n/a

New Mexico Common Course information

Prefix	BIOL
Number	2110
Suffix	
Title	Principles of Biology: Cellular and Molecular Biology

A. Content Area and Essential Skills

To which content area should this course be added? *Indicate "Other" if the course is not associated with one of the six NM General Education content areas.*

☐ Communications   ☐ Mathematics   ☒ Science   ☐ Social & Behavioral Sciences

☐ Humanities   ☐ Creative & Fine Arts   ☐ Flex

Which essential skills will be addressed?

☐ Communication ☒ Critical Thinking ☐ Information & Digital Literacy

☒ Quantitative Reasoning ☒ Personal & Social Responsibility

B. Learning Outcomes

List all common course student learning outcomes for the course.

1. Apply the scientific method to develop and evaluate hypotheses and propose an experiment to test a scientific hypothesis related to cell biology and molecular biology.
2. Describe the distinguishing characteristics of various biological molecules (water, carbohydrates, lipids, proteins, and
nucleic acids). (HED Area 3, Competency 3)
3. Compare and contrast the basic features of cells and how prokaryotic cells differ from eukaryotic cells. (HED Area 3, Competency 3)
4. Understand how organisms maintain homeostasis in a dynamic environment.
5. Describe how biological molecules are acquired and how they are subsequently used to meet the metabolic needs of organisms. (HED Area 3, Competency 3)
6. Describe membrane structure and function.
7. Describe and analyze the nature of bioenergetic transformations and metabolism within the cell.
8. Describe the processes of cellular respiration and photosynthesis.
9. Analyze with specific detail the processes of DNA replication, transcription, and translation.
10. Analyze with specific detail the types, mechanisms, and regulation of cellular division.
11. Assess important applications of cell and molecular biology to energy use, medicine, and other day-to-day processes. (HED Area 3, Competency 1,3,4,5)

List all institution-specific Student Learning Outcomes that are common to all course sections offered at the institutions regardless of instructor.

n/a

C. Narrative

In the boxes provided, write a short (~300 words) narrative explaining how the course weaves the essential skills associated with the content area throughout the course. Explain what students are going to do to develop the essential skills and how you will assess their learning. The narrative should be written with a general audience in mind and avoid discipline specific jargon as much as possible.

Be sure to address the component skills listed next to each essential skill. The number of component skills that must be addressed by your narrative is listed.

Communication. *Genre and Medium Awareness, Application and Versatility; Strategies for Understanding and Evaluating Messages; and Evaluation and Production of Arguments.*

Critical Thinking. *Problem Setting; Evidence Acquisition; Evidence Evaluation; and Reasoning/Conclusion*
In this course, students will actively develop critical thinking skills by engaging in the process of inquiry and analysis, which is fundamental to scientific exploration. From the outset, students will apply the scientific method, beginning with the formation and evaluation of hypotheses based on key concepts in cell biology and molecular biology. By proposing experiments related to topics such as cell structure, metabolic processes, and the regulation of cellular functions, students will sharpen their ability to approach biological problems analytically. This skill will be critical as they progress through the course, not only in forming hypotheses but also in interpreting biological data and forming conclusions based on evidence. Critical thinking will also be developed through comparative analysis. Students will explore distinctions and similarities between biological molecules—such as water, carbohydrates, proteins, and nucleic acids—and between cellular structures, including the differences between prokaryotic and eukaryotic cells. As students analyze these features, they will be challenged to question how these distinctions impact biological function and contribute to the overall understanding of life processes. Moreover, students will explore bioenergetic transformations like cellular respiration and photosynthesis, which will require them to integrate and apply their knowledge to evaluate how cells utilize and transform energy. Students will engage in discussions and problem-solving activities that involve real-world applications of cell and molecular biology, such as medical advancements or energy-related issues. These activities will encourage them to assess complex biological phenomena, such as homeostasis, DNA replication, and cellular division, and apply their understanding to contemporary challenges in biology. To assess the development of critical thinking, a combination of formative and summative assessments will be used. Quizzes and exams will test students' grasp of foundational concepts, but more importantly, students will be asked to demonstrate their ability to think critically through written assignments, where they will analyze biological scenarios, propose solutions, and justify their reasoning. For example, students may be tasked with evaluating how cells respond to environmental changes or how bioenergetic processes impact organismal survival. Regular feedback on these assignments will guide students to refine their analytical skills and deepen their understanding of biological systems. By the end of the course, students will not only have acquired a detailed understanding of cell and molecular biology but will have developed a robust capacity for critical thinking, enabling them to approach scientific problems with curiosity, rigor, and confidence.

Quantitative Reasoning. *Communication/Representation of Quantitative Information; Analysis of Quantitative Arguments; and Application of Quantitative Models*
In this course, students will develop the critical skill of Quantitative Reasoning by engaging with a series of activities and assessments designed to deepen their understanding of cell and molecular biology. They will be expected to apply the scientific method, which involves forming hypotheses and designing experiments that can quantitatively test those hypotheses related to key biological processes, such as cellular respiration, membrane structure, and DNA replication. Through data collection and analysis in these areas, students will enhance their ability to interpret experimental results using quantitative metrics. For example, they will compare reaction rates of enzymatic processes or evaluate concentration changes in metabolic pathways. By analyzing the data generated in these contexts, they will practice drawing evidence-based conclusions, which is a key aspect of Quantitative Reasoning. Assessment of their learning will be integrated into various components, including quizzes and exams that ask students to solve quantitative problems, explain their reasoning, and interpret biological data. Additionally, problem sets focused on key topics such as bioenergetic transformations or the metabolic needs

of organisms will require students to demonstrate mastery of quantitative concepts. Regular feedback on these assessments will help students refine their skills throughout the course.

By linking core biological content to quantitative analysis, this course ensures that students not only understand the biological processes but also have the mathematical and analytical tools to critically evaluate and apply their knowledge in real-world contexts.

Personal & Social Responsibility. *Intercultural reasoning and intercultural competence; Sustainability and the natural and human worlds; Ethical reasoning; Collaboration skills, teamwork and value systems; and Civic discourse, civic knowledge and engagement – local and global*

In this course, students will develop the critical skill of personal and social responsibility by engaging deeply with the core concepts of cell and molecular biology and applying this knowledge to real-world contexts that impact both individuals and society. The course is structured to foster both intellectual growth and ethical awareness, as students will explore biological processes that are directly linked to societal challenges, such as healthcare, environmental sustainability, and energy use.

Throughout the course, students will apply the scientific method to formulate and test hypotheses related to cell and molecular biology. For instance, they may propose an experiment to explore how biological molecules like proteins or nucleic acids function in cellular processes, which encourages students to think critically about the broader implications of their findings, such as in medicine or biotechnology. This process not only enhances their scientific reasoning but also helps them understand their responsibility as emerging scientists to contribute positively to societal issues.

By understanding key biological concepts—such as how cells function, how organisms maintain homeostasis, and how cellular respiration and photosynthesis support life—students will connect the science they learn to everyday applications. This will allow them to reflect on personal choices, such as their diet and energy use, and consider how these choices affect both their own health and the environment. Discussions in the course will prompt students to compare and contrast the roles of different biological molecules in metabolism and energy production, tying these concepts to the larger societal issue of sustainability.

The course will also encourage students to assess the social implications of scientific discoveries and advancements. For example, students will explore the impact of DNA technologies in medicine, such as genetic testing and gene therapy. This exploration will lead to discussions about the ethical considerations surrounding these technologies, promoting a sense of responsibility toward the application of science in ways that benefit society while minimizing harm.

Assessment of students' learning in the course will include a combination of written assignments, quizzes, discussions, and reflective essays. In these assessments, students will demonstrate their ability to critically analyze biological processes and relate them to broader social and ethical contexts. For example, students might write reflective essays analyzing how bioenergetic transformations within cells can be applied to renewable energy solutions, or how understanding cellular division and DNA replication can inform medical treatments for diseases like cancer.

In addition to content knowledge, students will be assessed on their ability to think critically about how their scientific knowledge can be applied responsibly. This holistic approach to learning assessment will ensure that students not only understand the content but are also aware of their role in applying scientific knowledge for the betterment of society, thereby cultivating Personal and Social Responsibility.

Information & Digital Literacy. *Authority and Value of Information; Digital Literacy; Information Structure; and Research as Inquiry*

D. Assessment (Must be on file with HED by August 1, 2019)

Link to Institution's General Education Assessment Plan	https://luna.edu/academic_assessment

Criteria	Exemplary (90-100%)	Proficient (80-89%)	Developing (70-79%)	Needs Improvement (<70%)
Hypothesis Development(20%)	Hypothesis is clear, testable, and highly relevant to the scenario; demonstrates deep understanding of course concepts.	Hypothesis is clear and testable; relevant to the scenario with good use of course concepts.	Hypothesis is somewhat clear but may lack relevance or depth in relation to the scenario.	Hypothesis is unclear, not testable, or poorly connected to course concepts.
Experimental Design (25%)	Experiment is exceptionally well-designed with clear variables, control groups, and data collection methods; highly feasible and well thought out.	Experiment is well-designed with clear variables and controls, though minor aspects of the design may need refinement.	Experiment design is somewhat unclear or lacks key elements (e.g., control group, variables); needs more detail.	Experiment design is poorly constructed or missing key components, making it difficult to assess hypothesis.
Critical Analysis of Metabolic Process(25%)	Analysis is thorough, comparing the novel organism's processes with other organisms in a highly insightful way; demonstrates critical thinking and synthesis of concepts.	Analysis is clear and demonstrates good understanding of metabolic processes; some comparison with other organisms is present.	Analysis is basic, with limited comparison to other organisms or lack of depth in understanding metabolic processes.	Analysis lacks clarity or does not demonstrate sufficient understanding of metabolic processes or organism comparison.
Real-World Application(15%)	Application to real-world challenges is highly relevant, creative, and well-justified with strong examples from the course.	Application to real-world challenges is relevant and justified with clear examples from the course.	Application is somewhat relevant but lacks depth or strong connection to real-world challenges or course material.	Application is unclear or lacks relevance to real-world challenges; poor connection to course concepts.
Organization and Clarity(10%)	The report is exceptionally well-organized, logically structured, and free of errors; writing is clear and professional.	The report is well-organized and mostly clear, with minor errors that do not impede understanding.	Report lacks clarity in parts, with some organizational or grammatical issues that affect understanding.	Report is poorly organized or unclear; numerous grammatical or structural issues hinder understanding.
Use of Evidence(5%)	Integrates course material and outside sources exceptionally well to support claims and analysis.	Adequate use of course material and evidence to support claims; may lack some depth in sourcing.	Limited use of course material or evidence; analysis is somewhat superficial or unsupported.	Little to no use of course material or evidence to support claims; lacks critical engagement with the material.

![New Mexico Higher Education Department logo]

NEW MEXICO HIGHER EDUCATION DEPARTMENT
Fostering Student Success from Cradle to Career

Michelle Lujan Grisham, Governor
Stephanie M. Rodriguez, Cabinet Secretary
Patricia Trujillo, Deputy Secretary

New Mexico General Education Curriculum Course Certification Form

Application Number | 3107 |

Institution and Course Information

Name of Institution	Luna Community College
Chief Academic Officer Name	Karen Torres
Chief Academic Officer Email	ktorres@luna.edu
Registrar Name	Alicia Chacon
Registrar Email	achacon@luna.edu
Department	STEM
Prefix	BIOL
Number	2110L
Suffix	
Title	Principles of Biology: Cellular and Molecular Biology Lab
Number of Credits	1

Was this course previously part of the general education curriculum?

☒ Yes   ☐ No

Is this application for your system (ENMU, NMSU, & UNM)?

☐ Yes   ☒ No

Co-Requisite Course Information

Prefix	n/a
Number	n/a
Suffix	n/a
Title	n/a

New Mexico Common Course information

Prefix	BIOL
Number	2110L
Suffix	
Title	Principles of Biology: Cellular and Molecular Biology Lab

A. Content Area and Essential Skills

To which content area should this course be added? *Indicate "Other" if the course is not associated with one of the six NM General Education content areas.*

☐ Communications   ☐ Mathematics   ☒ Science   ☐ Social & Behavioral Sciences

☐ Humanities   ☐ Creative & Fine Arts   ☐ Flex

Which essential skills will be addressed?

☐ Communication   ☒ Critical Thinking   ☐ Information & Digital Literacy

☒ Quantitative Reasoning   ☒ Personal & Social Responsibility

B. Learning Outcomes

List all common course student learning outcomes for the course.

1. Describe and apply the scientific method to solve problems in biological context.
2. Demonstrate knowledge of laboratory safety skills and procedures.
3. Practice principles of scientific method while conducting laboratory activities and experiments.
4. Perform laboratory activities using relevant laboratory equipment, chemical reagents, and supplies to observe biological specimens, to measure variables, and to design and conduct experiments.
5. Operate light microscopes, prepare wet mount slides, and use stains.
6. Exhibit ability to use pipettes and other volumetric measuring devices, chemical glassware, balances, pH meters or test papers, spectrophotometers, and separation techniques, such as chromatography and/or electrophoresis to perform activities relevant to other course competencies.
7. Analyze and report data generated during laboratory activities and experiments.

List all institution-specific Student Learning Outcomes that are common to all course sections offered at the institutions regardless of instructor.

n/a

C. Narrative

In the boxes provided, write a short (~300 words) narrative explaining how the course weaves the essential skills associated with the content area throughout the course. Explain what students are going to do to develop the essential skills and how you will assess their learning. The narrative should be written with a general audience in mind and avoid discipline specific jargon as much as possible.

Be sure to address the component skills listed next to each essential skill. The number of component skills that must be addressed by your narrative is listed.

Communication. *Genre and Medium Awareness, Application and Versatility; Strategies for Understanding and Evaluating Messages; and Evaluation and Production of Arguments.*

Critical Thinking. *Problem Setting; Evidence Acquisition; Evidence Evaluation; and Reasoning/Conclusion*

In the cell and molecular biology course, students will actively engage in developing the critical skill of Critical Thinking by applying their understanding of biological processes and their ability to use the scientific method effectively. Throughout the course, students will delve into complex topics, such as the characteristics of biological molecules, cellular structure, bioenergetics, and the mechanisms of cellular division. These topics offer numerous opportunities for them to analyze, synthesize, and evaluate scientific concepts, helping them strengthen their critical thinking abilities.

Developing Critical Thinking Skills
Students will engage in problem-solving exercises that require them to apply the scientific method to real-world biological problems. For example, they will propose hypotheses related to cell biology and molecular biology, and then design experiments to test these hypotheses. This process will not only encourage students to think logically but also foster creativity as they devise ways to approach and solve scientific questions.

Additionally, students will be tasked with comparing and contrasting prokaryotic and eukaryotic cells and the metabolic needs of organisms. By engaging in discussions and writing assignments where they must distinguish between these fundamental concepts, students will practice evaluating information critically, identifying similarities and differences, and considering the implications of these differences for cellular function and homeostasis.

As they explore bioenergetic transformations, such as cellular respiration and photosynthesis, students will be asked to analyze the efficiency of these processes and evaluate their significance for life on Earth. These activities will push students to think critically about how molecular-level processes translate into broader biological outcomes, helping them connect theory to real-world applications.

Assessment of Critical Thinking
The assessment of critical thinking skills will be woven into both formative and summative assessments throughout the course. Formative assessments will include in-class activities such as group discussions, problem-solving workshops, and reflective assignments where students critique their own experimental designs or data interpretations. These activities will allow the instructor to monitor students' progress and provide feedback on their reasoning processes.

Summative assessments will include written lab reports, research papers, and exams where students are required to analyze experimental data, synthesize information from multiple sources, and propose new hypotheses or experiments. In particular, lab reports will assess students' ability to describe their hypothesis, interpret their data, and evaluate the success of their experimental design. Exams will feature open-ended questions that require students to justify their answers based on evidence and reasoning, demonstrating their ability to think critically about the material.

By combining these various assessments, the course will provide a comprehensive view of students' critical thinking development, ensuring they are prepared to apply these skills both in the classroom and in broader scientific contexts.

Quantitative Reasoning. *Communication/Representation of Quantitative Information; Analysis of Quantitative Arguments; and Application of Quantitative Models*

In this course, students will develop the critical skill of Quantitative Reasoning through hands-on experimentation, data analysis, and problem-solving activities that tie directly to the Course Learning Outcomes (CLOs). The nature of cell and molecular biology, which involves complex processes like bioenergetics, metabolism, and cellular division, provides an ideal platform for students to strengthen their ability to interpret and work with quantitative data.

Students will apply Quantitative Reasoning as they conduct experiments related to cellular and molecular biology. Students will design and propose experiments to test scientific hypotheses. This process will involve analyzing variables, predicting outcomes, and evaluating the effectiveness of experimental designs. For example, students may propose an experiment to test the impact of various environmental factors on enzyme activity or cellular respiration. These activities require students to interpret numerical data, apply

statistical reasoning, and determine how their experimental results support or refute their hypotheses.

Data Analysis in Bioenergetics and Metabolism (CLO 7, 8): Students will engage in experiments that require them to measure energy transformation processes, such as the rate of respiration or photosynthesis. Using real experimental data, they will calculate rates of reactions, analyze trends, and make comparisons across different conditions (e.g., temperature, light intensity). These activities will involve plotting data, interpreting graphs, calculating averages or percentage changes, and assessing the significance of their findings.

Quantitative Comparisons of Cells and Biological Molecules (CLO 2, 3): To understand the structural and functional differences between prokaryotic and eukaryotic cells, or among various biological molecules, students will need to quantify characteristics such as molecular concentrations, cell sizes, and reaction rates. This requires them to apply mathematical reasoning to compare and contrast structures and functions, honing their ability to interpret quantitative measurements.

Assessment of Quantitative Reasoning

Lab Reports: In each lab session, students will submit reports that include a detailed analysis of the data they collected during experiments. They will be expected to demonstrate their ability to use quantitative methods to draw meaningful conclusions from their results. The accuracy and depth of their data analysis, as well as their ability to contextualize their findings within the broader scientific understanding, will be assessed.

Problem Sets and Data Interpretation: Students will complete problem sets that involve interpreting experimental data, calculating reaction rates, or determining the significance of differences between control and experimental groups. These assignments will help assess their ability to apply quantitative reasoning to solve biological problems.

Exams and Quizzes: Quizzes and exams will feature questions that require students to engage in quantitative reasoning, such as interpreting graphs, performing basic calculations, or analyzing data tables related to cellular processes. Students; ability to accurately calculate, interpret, and apply quantitative data will be key factors in their success.

Peer Review and Group Work: Collaborative exercises, such as peer review of lab results or group discussions analyzing experimental data, will provide opportunities for students to refine their quantitative reasoning by explaining and defending their interpretations to peers. This process reinforces the critical evaluation of data and ensures that students can communicate their findings effectively.

Personal & Social Responsibility. *Intercultural reasoning and intercultural competence; Sustainability and the natural and human worlds; Ethical reasoning; Collaboration skills, teamwork and value systems; and Civic discourse, civic knowledge and engagement – local and global*

In the cell and molecular biology course, students will cultivate the critical skill of Personal and Social Responsibility by engaging in activities that demand ethical decision-making, collaboration, and an understanding of the broader implications of scientific discoveries. This skill will be fostered through active participation in collaborative learning experiences and reflective exercises that tie scientific content to societal issues.

To develop Personal and Social Responsibility, students will:

Engage in collaborative projects: In group discussions and lab assignments, students will work together to apply the scientific method (CLO 1) and propose experiments that address real-world challenges, such as medical advancements or energy sustainability (CLO 11). This will encourage students to consider the ethical dimensions of scientific research, such as the impact of biotechnology on human health and the environment.

Reflect on the societal impact of biological concepts: Students will participate in discussions and reflective assignments exploring how concepts like homeostasis, metabolism, and cellular division (CLO 4, 7, 10) relate to public health, climate change, and energy use. This reflection will allow students to connect

scientific knowledge to issues of personal and societal importance.

Address ethical considerations in science: Through case studies related to DNA replication, transcription, and translation (CLO 9) or bioenergetic transformations (CLO 7), students will examine the responsibilities scientists have in ensuring the ethical use of scientific knowledge, such as in genetic engineering or medical research.

To assess Personal and Social Responsibility:

Group Projects: Students' abilities to collaborate effectively and responsibly in group experiments and projects will be evaluated through peer assessments and self-reflection reports. The quality of their group interactions and how they share responsibilities will be a key aspect of this assessment.

Reflective Assignments: Students will complete written reflections on the ethical and societal implications of biological research and its applications (CLO 11). These reflections will be assessed based on students' ability to thoughtfully engage with the material, connect it to broader societal issues, and consider their personal responsibility as future professionals.

Lab Participation and Presentations: Students' presentations of their experimental proposals (CLO 1) will be assessed for their attention to the ethical implications of their experiments, including consideration of safety, environmental impact, and the potential social consequences of their findings.

Through these activities and assessments, students will not only gain a deep understanding of cell and molecular biology concepts but also develop the critical thinking and ethical reasoning needed to navigate the complex societal issues intertwined with scientific discovery.

Information & Digital Literacy. *Authority and Value of Information; Digital Literacy; Information Structure; and Research as Inquiry*

D. Assessment (Must be on file with HED by August 1, 2019)

| Link to Institution's General Education Assessment Plan | https://luna.edu/academic_assessment |

Assignment: Research Proposal on Cellular Function and Molecular Biology

Assignment Overview:
Students are required to develop a research proposal that addresses a specific hypothesis related to **cellular function or molecular biology**. The proposal should include a clear hypothesis, background research on the topic, an experimental design to test the hypothesis, and a discussion of expected outcomes and their implications.

This assignment encourages students to integrate their knowledge from various topics covered in the course, such as biological molecules, cell structure, metabolism, bioenergetics, and cellular division.

Assignment Guidelines:
1. **Title and Introduction (10 points)**: Provide a title for your research proposal and an introduction that gives background on the topic. The introduction should:
    o Explain the significance of the chosen topic.
    o Reference relevant concepts from the course, such as cell types, molecular biology, or metabolism.
    o Present a clear research question or hypothesis.
2. **Literature Review (20 points)**: Conduct a brief literature review to summarize previous research related to your hypothesis. The review should:
    o Discuss at least three peer-reviewed scientific sources.
    o Explain how this research has informed your understanding of the topic and hypothesis.
3. **Experimental Design (30 points)**: Propose an experiment to test your hypothesis. The experimental design should include:
    o A detailed description of the experiment, including materials, methods, and controls.
    o The variables you plan to manipulate (independent) and measure (dependent).
    o A justification of why this experiment will effectively test your hypothesis.
4. **Expected Results and Discussion (20 points)**: Predict the possible outcomes of your experiment and discuss their significance.
    o What results do you expect if the hypothesis is supported or refuted?
    o How will these results contribute to our understanding of the biological process you are studying?
5. **Conclusion (10 points)**: Provide a summary of your proposal, including the importance of your hypothesis and the potential impact of your findings on the field of cell and molecular biology.
6. **References (10 points)**: Include a properly formatted reference list with at least three peer-reviewed sources used in the literature review and any additional references cited in the proposal.

Criteria	Exemplary (A)	Proficient (B)	Needs Improvement (C)	Unsatisfactory (D/F)
Title & Introduction (10 pts)	Clear, concise title; Introduction effectively establishes the research question and connects to course concepts. (9-10 pts)	Title and introduction provide some connection to course concepts; hypothesis is present but lacks clarity. (7-8 pts)	Title or introduction is vague or missing key details; hypothesis is unclear. (5-6 pts)	Little to no effort in introduction or title; hypothesis absent. (0-4 pts)
Literature Review (20 pts)	Comprehensive review with 3+ peer-reviewed sources; connections to hypothesis well explained. (18-20 pts)	Review includes 3 sources; some connection to hypothesis, though it may lack depth. (14-17 pts)	Fewer than 3 sources, or minimal connection to hypothesis. (10-13 pts)	Incomplete or irrelevant literature review; insufficient sources. (0-9 pts)
Experimental Design (30 pts)	Detailed, feasible experiment; variables clearly defined; design addresses hypothesis directly. (27-30 pts)	Experiment is clear but may lack some detail or depth; variables are defined but not fully justified. (21-26 pts)	Design is underdeveloped or unclear; variables are not well-defined. (15-20 pts)	Experimental design is vague or missing essential components. (0-14 pts)
Expected Results & Discussion (20 pts)	Thoughtful discussion of possible outcomes; clearly explains how results will affect the field. (18-20 pts)	Discussion covers possible outcomes but lacks some detail; connections to hypothesis are made. (14-17 pts)	Expected results are unclear or disconnected from the hypothesis; discussion is limited. (10-13 pts)	Little to no explanation of expected results or their implications. (0-9 pts)
Conclusion (10 pts)	Clear, well-rounded summary that ties together the importance of the hypothesis and the experiment. (9-10 pts)	Conclusion summarizes the proposal, but lacks depth or clarity. (7-8 pts)	Conclusion is vague, leaving questions unanswered or poorly explained. (5-6 pts)	No clear conclusion provided. (0-4 pts)
References (10 pts)	3+ peer-reviewed sources cited correctly; references support the proposal well. (9-10 pts)	At least 3 sources cited but some formatting or source quality issues. (7-8 pts)	Fewer than 3 sources, or major formatting issues. (5-6 pts)	No references, or references are not credible. (0-4 pts)