NEW MEXICO HIGHER EDUCATION DEPARTMENT

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GOVERNOR

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CABINET SECRETARY

New Mexico General Education Curriculum Course Certification Form

A. Institution and Course Information

Name of Institution:
Department: Mathematics
Course Number, Title, Credits: MATH 1110 Survey of Mathematics, 3
Co-requisite Course Number and Title, if any
Is this application for your system (ENMU, NMSU, & UNM)? No.
Name and Title of Contact Person:
Email and Phone Number of Contact Person:

Was this course previously part of the general education curriculum?

☒ Yes ☐ No

B. 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 ☐ Other

Which essential skills will be addressed?

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

C. Learning Outcomes

This course follows the CCNS SLOs for

MATH 1110 Survey of Mathematics

List all learning outcomes that are shared between course sections at your institution.

1. Construct and analyze graphs and/or data sets. a. Gather and organize information. b. Understand the purpose and use of various graphical representations such as tables, line graphs, tilings,

networks, bar graphs, etc. c. Interpret results through graphs, lists, tables, sequences, etc. d. Draw conclusions from data or various graphical representations.

2. Use and solve various kinds of equations. a. Understand the purpose of and use appropriate formulas within a mathematical application. b. Solve equations within a mathematical application. c. Check answers to problems and determine the reasonableness of results.
3. Understand and write mathematical explanations using appropriate definitions and symbols. a. Translate mathematical information into symbolic form. b. Define mathematical concepts in the student's own words. c. Use basic mathematical skills to solve problems.
4. Demonstrate problem solving skills within the context of mathematical applications. a. Show an understanding of a mathematical application both orally and in writing. b. Choose an effective strategy to solve a problem. c. Gather and organize relevant information for a given application.

D. Narrative

Explain what students are going to do to develop the critical skills (selected above) **and how you will assess their learning?**

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

In this course, students communicate in a variety of genres and media. They write a simple research proposal, and they present that proposal to the class. They write a short paper describing and evaluating a statistical study as presented in the popular press, and they engage in written discussions where they are asked to summarize and evaluate arguments or procedures and respond to peer's claims. In addition, students perform a simple study and write a short paper describing their process, their data, and their conclusions.

Students read a variety of texts including popular press articles about statistical studies, textbook selections describing situations where exponential growth occurs, and online descriptions of statistical methodology from organizations that conduct surveys. Assignments require that students read for main ideas and supporting details to create summaries and that they evaluate ideas with a statistical or mathematical lens.

In a short essay, students evaluate a statistical study as presented in the popular press. In this assignment, students identify strengths and weaknesses in the study and consider the authority of the study's authors, publishers, and funders.

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

In this course, students conduct a basic statistical study. They define the population of interest and the goal of their study. They gather evidence by developing a questionnaire or other data collection plan and collecting data, doing their best to choose a sample representative of the population studied. Students then begin to evaluate their evidence by presenting it visually in charts and graphs and calculating sample statistics. They look for patterns in the data. They develop a conclusion based on their data and make recommendations for follow-up studies.

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

Students represent quantitative information using equations and formulas (examples: compound interest, savings plans, loan payments, amortization of loans, taxation, sample statistics, percentages, percent change), graphs (examples: column and bar charts, histograms, boxplots, time series graphs, scatterplots), spreadsheets, and written language (examples: identifying patterns, categorizing histograms by peaks and direction of skew, describing center and variation, categorizing scatterplots by type and strength of correlation).

In a paper, students summarize a statistical study including identifying the population and sample, the sampling method, the nature of the study (observational or experiment), the variables of interest and any possible confounding variables. They also critique the study considering possible bias in the sample or in the setting and wording of the survey and consider if the study presented its results fairly and achieved its goals.

Students complete projects in which they analyze the effects of changes (amounts borrowed, saved, or invested; interest rates; frequency of compounding; length of time) made to investments, savings plans and mortgages. They use formulas, spreadsheets, and graphs to analyze various scenarios, make estimations and predictions, interpret results, and state conclusions that they can apply to their own financial decision making.

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 box, provide a narrative that explains how the proposed course addresses the outcomes of the third essential skill. 250 – 500 words.

Information & Digital Literacy. *Authority and Value of Information; Digital Literacy; Information Structure; and Research as Inquiry*
In this box, provide a narrative that explains how the proposed course addresses the outcomes of the third essential skill. 250 – 500 words.

E. Supporting Documents (required).

☒ Syllabus Attached ☒ Sample Assessment Attached

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

Link to Institution's General Education Assessment Plan Click here to enter text.

G. Relationship between Institutional Assessment Plan and this Course

Data is collected from this course annually as part of SFCC's general education assessment plan.

This course meets institutional standards for general education.

_____ _____

Signature of Chief Academic Officer Date

HED Internal Use Only

Presented to NMCC on _____
Date

☐Approved ☐Denied

If denied, rationale:

Institution Notified on _____
Date