UAF DMS Guidelines for

MATH 113X Numbers, Patterns, and Society

Across all sections of Math 113X offered by UAF campuses (delivered in person or online), all syllabi must minimally satisfy the following requirements.

Note: This course meets 1 hour per day 3 days a week (or should be set up for equivalent "class" time).

- 1. General guidelines set by UAF; follow this link to the UAF syllabus requirements
- 2. GER Information (sample statement below):

This course is listed as a General Education Math Course as such this course is expected to meet the 4 general learning outcomes.

- Build knowledge of human institutions, sociocultural processes, and the physical and natural
 works through the study of mathematics. Competence will be demonstrated for the
 foundational information in each subject area, its context and significance, and the methods
 used in advancing each.
- 2. Develop intellectual and practical skills across the curriculum, including inquiry and analysis, critical and creative thinking, problem solving, written and oral communication, information literacy, technological competence, and collaborative learning. Proficiency will be demonstrated across the curriculum through critical analysis of proffered information, well-reasoned solutions to problems or inferences drawn from evidence, effective written and oral communication, and satisfactory outcomes of group projects.
- 3. Acquire tools for effective civic engagement in local through global contexts, including ethical reasoning, intercultural competence, and knowledge of Alaska and Alaska issues. Facility will be demonstrated through analyses of issues including dimensions of ethics, human and cultural diversity, conflicts and interdependencies, globalization, and sustainability.
- 4. Integrate and apply learning, including synthesis and advanced accomplishment across general and specialized studies, adapting them to new settings, questions and responsibilities, and forming a foundation for lifelong learning. Preparation will be demonstrated though production of a a creative or scholarly product that requires broad knowledge, appropriate technical proficiency, information collection, synthesis, interpretation, presentation and reflection.

3. Text: Math in Society by David Lippman (This is a free online text that can be found at https://www.opentextbookstore.com/mathinsociety/

There are three main modules that should be covered:

Module 1: Mathematics of Social Choice

Voting Theory Weighted Voting

Fair Division

Module 2: Mathematics

Graph Theory

Scheduling

Module 3: Mathematics of

Growth Models

Finance

Cryptography (leave out public key cryptography)

4. Online Homework System

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The inclusion of online homework is up to the instructor, however if used this course satisfied the UA NoLo designation. Lumen OHM has been chosen. This has a cost of \$25 to the student and integrates with Canvas. The template course Math for Liberal Arts- Lumen Learning, can be used as is or easily modified as instructors see fit.

5. Timing of material

For each of the following, the minimum time spent on the sections is listed.

This is a suggested outline with Module Assessments and comprehensive Final Exam or Project.

Topic Approximate timing based on 3-day a week course

Voting Theory	•	5 days
Weighted Voting		4 days
Fair Division		4 days
	Assessment for Module 1	
Graph Theory		8 days
Scheduling		5 days
-	Assessment for Module 2	
Growth Models		4 days
Finance		4 days
Cryptography		5 days

Assessment for Module 3 Final Exam or Final Project

6. Types of Assessments

Homework

- for online work through Lumen OHM, mastery level (if used) should be no less than 75%
- instructors should provide written feedback to students approximately weekly throughout the semester; this can be through humanly-graded assignments or email correspondence

Exams or Quizzes

- three module exams and/or about 8 section quizzes
- exams/quizzes must be proctored and timed
- use of non-graphing calculators are allowed in this course
- exams/100/192248<001.06F104 5120/04/11.09 x 8 x 104/02.05 x 22 (rr(note n/M/1 tipole 25 note = 0.96 Tf 1 0 0 1 341.35 G [()] TJ1E01C6
- exams/quizzes must be paper-and-pencil exams, written and graded by faculty members
- exams/quizzes should not be reused from previous semesters, limited reuse of edited problems is acceptable

Project

For a project in this course students should show an understanding of how mathematics is used in everyday life or show how it is used in

7. Grading Policy

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For more information, go to the Students Handbook or the Center for Students Rights and Responsibilities.

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