

Senior Portfolio Instructions

Prior to graduation, all mathematics students must complete a senior portfolio, including the following cover sheet. This portfolio consists of three parts and must be signed by the student's academic advisor.

Part I: A collection of four to six mathematics artifacts.

Actuarial Science Sequence: At least four items from the following list:

1. Graded statistical project from an actuarial or statistics course, such as MAT 353, MAT 380, MAT 383, or MAT 384.
2. Internship report submitted for MAT 298.
3. Substantial graded proof or mathematical argument in a class taken in the major, most likely MAT 175.
4. Graded test from an advanced actuarial class, e.g., MAT 380, MAT 383, or MAT 384.
5. Proof of having passed two or more professional actuarial examinations.
6. File from a presentation made by a student in the ISU Math Department's Actuarial Research Seminar.

Mathematics and Statistics Sequences: A collection of four to six mathematics artifacts. These problems with solutions can not all come from one course and are to demonstrate your ability to use the language of mathematics to communicate ideas, show how you are able construct and critically analyze mathematical arguments, and demonstrate your ability to develop your problem solving skills, logical reasoning, and creative thinking over a sequence of courses.

Suggested problems to include would be any project or extended problem given in courses numbered 175 or higher. You are encouraged to select problems from a series of related courses. For example, you might choose to include sample problems/solutions from a sequence of courses taken over the same mathematics subtopic, as given below.

Algebra: MAT 175, MAT 236, MAT 330, MAT 336, MAT 337

Analysis: MAT 247, MAT 340, MAT 341, MAT 345, MAT 347

Discrete Mathematics: MAT 260, MAT 361, MAT 362, MAT 363

Statistics: MAT 350, MAT 351, MAT 356, MAT 378

Research: MAT 175, MAT 260, MAT 268

Note that it is not necessary to include problems from every course listed in a subtopic above, only a subset of courses from a subtopic or subtopics. You are encouraged to submit several problems with solutions from two or more subtopics.

For each artifact, include a brief description of why this particular artifact was chosen and how it meets the criteria stated above. For example, how does this artifact demonstrate using the language of mathematics to communicate ideas? How does this artifact demonstrate your ability to critically analyze mathematical arguments? How does this artifact show how you have developed your problem solving skills and/or creative thinking? It is not necessary that every artifact meet all the criteria suggested above, but each artifact should demonstrate at least one of these features. In addition, each of the criteria mentioned above should be addressed by at least one artifact.

Part II: Complete the Attitude Assessment Survey during your last semester. You will be sent a link to survey during your last semester.

Part III: Submit your scores on external professional examinations, if applicable to your sequence (see the following cover sheet).

SENIOR PORTFOLIO COVER SHEET

Name _____ Advisor _____

UID _____ Graduation Term _____ Catalog _____

Major (s) _____ Graduation GPAs: Major _____

Minor (s) _____ Overall _____

Math Courses Completed: 200-level _____

(circle transfer courses) 300-level _____

Part I: Problems, with solutions, from the following courses:

Artifact #	Title	Course	Grade	Brief description of artifact.
1.				
2.				
3.				
4.				
5.				
6.				

Part II: Attitude Assessment Survey

Date Survey Completed Online: _____

Part III: Professional Examinations Scores (enter NA if not applicable)

Illinois Certification Testing Exam in Math: Score _____

Actuarial Course Exams:

SOA P/ CAS 1 Score _____

SOA FM/CAS 2 Score _____

SOA MFE Score _____

SOA MLC Score _____

GRE:

Verbal Reasoning Score _____

Quantitative Reasoning Score _____

Analytical Writing Score _____

GRE Mathematics Subject Test: Score _____

Comparable Professional Exam: _____ Score _____

Portfolio Evaluation Date _____

Advisor Signature _____

Department of Mathematics B.A./B.S. Portfolio Assessment Rubric

Primary Traits	Not Present	Developing	Established	Advanced	Goal
Demonstrates the ability to <u>construct and analyze mathematical arguments</u> (for example, a proof).		Shows evidence of <u>developing mathematical arguments and proofs</u> ; gives evidence of <u>using various methods of reasoning and proof</u> .	Shows evidence of <u>fully developed mathematical arguments and proofs</u> ; shows evidence of <u>recognizing reasoning and proof as fundamental aspects of mathematics</u> ; shows evidence of <u>selecting and using various methods of reasoning and proof</u> .	Shows evidence of <u>fully developed mathematical arguments and proofs that are elegant and creative</u> ; shows evidence of <u>recognizing reasoning and proof as fundamental aspects of mathematics</u> ; shows evidence of <u>selecting and using various methods of reasoning and proof in creative ways</u> ; shows evidence of <u>making and investigating mathematical conjectures</u> .	2
Demonstrates the ability to <u>solve mathematical problems</u> .		Shows evidence of <u>solving routine problems</u> ; provides evidence of <u>knowing</u> the process of mathematical problem solving.	Shows evidence of <u>applying a variety of strategies to solve mathematical problems</u> ; shows evidence of <u>more developed</u> mathematical problem solving skills.	Shows evidence of <u>applying and adapting a variety of strategies to solve mathematical problems utilizing logical reasoning and creative thinking</u> ; artifacts indicate that the student <u>can build mathematical knowledge</u> through problem solving skills.	3
Applies mathematical knowledge to <u>new problem situations</u> .		Shows evidence of <u>recognizing and solving new problem situations</u> .	Shows evidence of recognizing and solving new problems <u>in a variety of contexts</u> .	Shows evidence of recognizing and solving new problems <u>in a variety of contexts</u> ; shows evidence of <u>selecting, applying, and translating mathematical ideas to solve new problems</u> .	3
Uses <u>mathematical terms</u> (notation, symbolism) appropriately and correctly.		Shows evidence of <u>using mathematical terms to organize, record, and communicate mathematical ideas</u> .	Shows evidence of using mathematical terms to <u>organize, record, and communicate mathematical ideas</u> ; shows evidence of using mathematical terms to <u>model physical, social, or mathematical phenomenon</u> .	Shows evidence of <u>using mathematical terms to organize, record, and communicate mathematical ideas</u> ; shows evidence of using mathematical terms to <u>model and interpret physical, social, or mathematical phenomenon</u> ;	5
Demonstrates the ability to <u>communicate mathematics</u> .		Shows evidence of <u>using the language of mathematics in some appropriate ways</u> .	Shows evidence of <u>communicating his or her mathematical thinking clearly to others</u> ; shows evidence of <u>using the language of mathematics to express ideas precisely</u> .	Shows evidence of <u>communicating his or her mathematical thinking clearly to others</u> ; shows evidence of <u>using the language of mathematics to express ideas precisely</u> ; shows evidence of <u>organizing mathematical thinking through communication</u> .	5