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| For Academic Affairs and Research Use Only |
| Proposal Number | SM26 |
| CIP Code:  |  |
| Degree Code: |  |

**New or Modified Course Proposal Form**

**[X] Undergraduate Curriculum Council**

**[ ] Graduate Council**

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| **[X]New Course, [ ]Experimental Course (1-time offering), or [ ]Modified Course (Check one box)** |

Signed paper copies of proposals submitted for consideration are no longer required. Please type approver name and enter date of approval.

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|  Hong Zhou 10/25/2021**Department Curriculum Committee Chair** | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Enter date…**COPE Chair (if applicable)** |
| Amanda Lambertus 10/25/2021**Department Chair** | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Enter date…**Head of Unit (if applicable)**   |
| John Hershberger 10/28/2021 Enter date…**College Curriculum Committee Chair** | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Enter date…**Undergraduate Curriculum Council Chair** |
| Mary Elizabeth Spence 10/6/2021**Director of Assessment (new courses only)** | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Enter date…**Graduate Curriculum Committee Chair** |
| Lynn Boyd 10/29/2021**College Dean** | Alan Utter 11/16/2021**Vice Chancellor for Academic Affairs** |
| \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Enter date…**General Education Committee Chair (if applicable)**   |  |

1. **Contact Person (Name, Email Address, Phone Number)**

Amanda Lambertus, alambertus@astate.edu, 972-3090

1. **Proposed starting term and Bulletin year for new course or modification to take effect**

Spring 2023. Bulletin Year 2022-2023

**Instructions:**

*Please complete all sections unless otherwise noted. For course modifications, sections with a “Modification requested?” prompt need not be completed if the answer is “No.”*

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|  | **Current (Course Modifications Only)** | **Proposed (New or Modified)** *(Indicate “N/A” if no modification)* |
| **Prefix** |  | **MATH** |
| **Number\*** |  | **4573** |
| **Title** |  | **Actuarial Science Seminar** |
| **Description\*\*** |  | **Students will gain a context to understand current issues in Actuarial Science, have the opportunity to meet with experts, apply knowledge to real-world problems, and prepare for actuarial exams. Prerequisite:** Senior standing and consent of the Program Director. **Fall, Spring** |

 ***\**** (Confirm with the Registrar’s Office that number chosen has not been used before and is available for use. For variable credit courses, indicate variable range. *Proposed number for experimental course is 9*. )

\*\*Forty words or fewer as it should appear in the Bulletin.

1. **Proposed prerequisites and major restrictions** **[Modification requested? Yes/No]**

(Indicate all prerequisites. If this course is restricted to a specific major, which major. If a student does not have the prerequisites or does not have the appropriate major, the student will not be allowed to register).

1. YES Are there any prerequisites?
	1. If yes, which ones?

Senior standing and consent of the Program Director

* 1. Why or why not?

This is a senior capstone course.

1. YES Is this course restricted to a specific major?
	1. If yes, which major? B.S. Actuarial Science
2. **Proposed course frequency [Modification requested? Yes/No]**

(e.g. Fall, Spring, Summer; if irregularly offered, please indicate, “irregular.”) *Not applicable to Graduate courses.*

Fall and Spring

1. **Proposed course type [Modification requested? Yes/No]**

Will this course be lecture only, lab only, lecture and lab, activity (e.g., physical education), dissertation/thesis, capstone, independent study, internship/practicum, seminar, special topics, or studio? Please choose one.

Seminar

1. **Proposed grade type [Modification requested? Yes/No]**

What is the grade type (i.e. standard letter, credit/no credit, pass/fail, no grade, developmental, or other [please elaborate])

Standard Letter

1. No Is this course dual-listed (undergraduate/graduate)?
2. No Is this course cross-listed?

*(If it is, all course entries must be identical including course descriptions. Submit appropriate documentation for requested changes. It is important to check the course description of an existing course when adding a new cross-listed course.)*

**a.** – If yes, please list the prefix and course number of the cross-listed course.

 Enter text...

 **b.** – **Yes / No** Can the cross-listed course be used to satisfy the prerequisite or degree requirements this course satisfies?

 Enter text...

1. Yes Is this course in support of a new program?

a. If yes, what program?

 B.S. Actuarial Science

1. No Will this course be a one-to-one equivalent to a deleted course or previous version of this course (please check with the Registrar if unsure)?

a. If yes, which course?

Enter text...

**Course Details**

1. **Proposed outline** **[Modification requested? Yes/No]**

(The course outline should be topical by weeks and should be sufficient in detail to allow for judgment of the content of the course.)

Week 1: Current Issues in Actuarial Science

Week 2: Applications of Actuarial Science in Insurance

Week 3: Introduction of course project

Week 4-6: Prep for Practice FM Actuarial Science exam

Week 7: Take the FM Actuarial Science exam

Week 8: Career Options in Actuarial Science

Week 9: Panel of Presenters about Actuarial Science in the Field

Week 10: Applications of Actuarial Science in Real Estate

Week 11-13 Prep for Practice P Actuarial Science exam

Week 14: Take the P Actuarial Science exam

Week 15: Present course projects

1. **Proposed special features** **[Modification requested? Yes/No]**

(e.g. labs, exhibits, site visitations, etc.)

Visits (possibly virtual) from industry experts and practitioners.

Students will complete the first two Actuarial Science exams (practice?)

1. **Department staffing and classroom/lab resources**

Enter text...

1. Will this require additional faculty, supplies, etc.?

 Enter text...

1. No Does this course require course fees?

 *If yes: please attach the New Program Tuition and Fees form, which is available from the UCC website.*

**Justification**

**Modification Justification (Course Modifications Only)**

1. Justification for Modification(s)

NA

**New Course Justification (New Courses Only)**

1. Justification for course. Must include:

 a. Academic rationale and goals for the course (skills or level of knowledge students can be expected to attain)

 This is a new course being offered in support of the BS Actuarial Science degree program. The seminar course will be a seminal course in the program. The Seminar in Actuarial Science will provide students with content to understand the current issues in Actuarial Science, Application of Actuarial Science in industry, different career paths, the opportunity to meet with presenters and experts in the field, and to practice and prepare for the first two actuarial exams.

b. How does the course fit with the mission of the department? If course is mandated by an accrediting or certifying agency, include the directive.

 The course will prepare students for careers in actuarial science.

c. Student population served.

Undergraduate students in the BS Actuarial Science Program

d. Rationale for the level of the course (lower, upper, or graduate).

Students are preparing and practicing for entry exams in actuarial science in this capstone course. They need a strong content background to be successful.

**Assessment**

**Assessment Plan Modifications (Course Modifications Only)**

1. **Yes / No** Do the proposed modifications result in a change to the assessment plan?

 *If yes, please complete the Assessment section of the proposal*

**Relationship with Current Program-Level Assessment Process (Course modifications skip this section unless the answer to #18 is “Yes”)**

1. What is/are the intended program-level learning outcome/s for students enrolled in this course? Where will this course fit into an already existing program assessment process?

This course is essential to the assessment plan for the BS Actuarial Sciences degree. It is a culmination of the students learning and will serve as a demonstration of their knowledge through a course project and Actuarial Exams.

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| NA |

1. Considering the indicated program-level learning outcome/s (from question #19), please fill out the following table to show how and where this course fits into the program’s continuous improvement assessment process.

*For further assistance, please see the ‘Expanded Instructions’ document available on the UCC - Forms website for guidance, or contact the Office of Assessment at 870-972-2989.*

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| **Program-Level Outcome 1 (from question #19)** | Demonstrate communication, leadership, and collaboration skills and recognize their importance in the actuarial industry |
| Assessment Measure | Course Project  |
| Assessment Timetable | Data will be collected every semester that students take MATH 4573. It will be reviewed on an annual basis. |
| Who is responsible for assessing and reporting on the results? | The program director and departmental assessment committee will be responsible for the review of the data. The program director will report the results.  |

 *(Repeat if this new course will support additional program-level outcomes)*

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| **Program-Level Outcome 2 (from question #19)** | Students will demonstrate up-to-date skills of computer and statistical programing software related to Actuarial Science. |
| Assessment Measure | Course Project  |
| Assessment Timetable | Data will be collected every semester that students take MATH 4573. It will be reviewed on an annual basis. |
| Who is responsible for assessing and reporting on the results? | The program director and departmental assessment committee will be responsible for the review of the data. The program director will report the results.  |

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| **Program-Level Outcome 3 (from question #19)** | Students will design and evaluate models that measure the impact of identified risks |
| Assessment Measure | Course Project  |
| Assessment Timetable | Data will be collected every semester that students take MATH 4573 and Financial Mathematics. It will be reviewed on an annual basis. |
| Who is responsible for assessing and reporting on the results? | The program director and departmental assessment committee will be responsible for the review of the data. The program director will report the results.  |

 **Course-Level Outcomes**

1. What are the course-level outcomes for students enrolled in this course and the associated assessment measures?

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| **Outcome 1** | Students will connect with actuators from different companies and roles to gain knowledge of the work of an actuary. |
| Which learning activities are responsible for this outcome? | Students will meet with various leaders and industry experts in the field of Actuarial Science. |
| Assessment Measure  | Survey of experiences and feedback from the students.  |

*(Repeat if needed for additional outcomes)*

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| **Outcome 2** | Students will incorporate software applications using projects involving actuarial problems and concepts.  |
| Which learning activities are responsible for this outcome? | Course Project |
| Assessment Measure  | Final Grade on a course project, using specific rubric criteria |

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| **Outcome 3** | Students will take professional exams from the Society of Actuaries.  |
| Which learning activities are responsible for this outcome? | Students will be involved in preparation for the FM and P exams. They will take a practice exam and the official exam.  |
| Assessment Measure  | Scores on both the practice and official exams. |

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| **Outcome 4** | Students will enhance soft skills in problem-solving, communication, presentation, and collaboration.  |
| Which learning activities are responsible for this outcome? | Course Project |
| Assessment Measure  | Final Grade on a course project, using specific rubric criteria |

**Bulletin Changes**

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| **Instructions**  |
| **Please visit** [**http://www.astate.edu/a/registrar/students/bulletins/index.dot**](http://www.astate.edu/a/registrar/students/bulletins/index.dot) **and select the most recent version of the bulletin. Copy and paste all bulletin pages this proposal affects below. Please include a before (with changed areas highlighted) and after of all affected sections.** **\*Please note: Courses are often listed in multiple sections of the bulletin. To ensure that all affected sections have been located, please search the bulletin (ctrl+F) for the appropriate courses before submission of this form.**  |

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MATH 4513. Applied Mathematics Topics in the elementary theory of differential equations, including existence theorems and applications. Prerequisite, MATH 3254. Fall, Spring.

MATH 4533. Numerical Methods Error analysis, numerical methods to solve nonlinear systems, numerical integration, ordinary and partial differential equations, and finite differences. Prerequisites, MATH 2214 and CS 2114. Spring, even.

MATH 4553. Advanced Calculus I The theoretical treatment of calculus of one real variable. Limits, continuity, sequences, differentiation and integration. Prerequisite, MATH 3254. Fall.

MATH 4563. Advanced Calculus II Continuation of MATH 4553. Prerequisite, MATH 4553. Spring.

MATH 4573. Actuarial Science Seminar **Students will gain a context to understand current issues in Actuarial Science, have the opportunity to meet with experts, apply knowledge to real-world problems, and prepare for actuarial exams. Prerequisite:** Senior standing and consent of the Program Director. **Fall, Spring**

MATH 4581. Mathematics Seminar  Prerequisite, MATH 3303. Fall, Spring.