UNDERGRADUATE PROGRAM MODIFICATION PETITION

1. Attach a description of the program as it currently exists, including program title and specific requirements: Mathematics-Actuarial Track. The curriculum leading to a degree in mathematics with an actuarial emphasis is designed to prepare the student for a career as an applied mathematician in the actuarial field. The validation by educational experiences (VEE) of the Society of Actuaries (SOA) and the Casualty Actuarial Society (CAS) are met by courses in economics, applied statistics, and corporate finance. (Curriculum sheet is attached.)

2. Proposed Program Title, if modified: unchanged

3. Proposed Program Description, if modified: Mathematics-Actuarial Track. The curriculum leading to a degree in mathematics with an actuarial emphasis is designed to prepare the student for a career as an applied mathematician in the actuarial field. The validation by educational experiences (VEE) of the Society of Actuaries (SOA) and the Casualty Actuarial Society (CAS) are met by courses in economics, applied statistics, and corporate finance. (New Curriculum sheet is attached.)

4. Proposed Program Admission Requirements, if modified: unchanged

5. Implementation Date: ☐ Fall ☐ Spring ☐ Summer I ☐ Summer II ☐ Summer III 2013 Year

6. Attach rationale for the program modification.

7. Department faculty signatures (majority required). If an interdisciplinary program, a majority of each department must sign this form. Number of Faculty in Dept(s) ___________ 

   ___________________________  ___________________________  ___________________________  ___________________________
   Doug McCloud  Rich Hudson  John Donnelly  Charles R. Kyle

   ___________________________  ___________________________  ___________________________
   Robert Wells  Kathy V. Rodgers  Dept. Chair

8. Sent to Chair of College Curriculum Committee: Date: 10/1/12

9. Received by Chair of College Curriculum Committee: Date: 10/1/12

   College Curriculum Committee:

   Approved ☑  Not Approved ☐

   Signature: ___________________________ Date: 10/1/12

   Chair of Committee

10. Sent to the Dean of the College of SEE Date: 10/1/12

    Approved ☑  Not Approved ☐
Mathematics Actuarial Track

Olga Connolly

Beth P. Holland

Sarah Klenkrest

Glenn Bullard

Keld Cafe

Carrie Anderson

A. Whitfield

Amanda Scott

Betty J. Blankfeld

Joyce Lumens

Robin A. Semmesheim

Mary Keast

Kath W. Carter
11. Sent to originator:  
   **Originator responsible for 12 through 13**

12. Is the program a part, or to be a part, of teacher training?
   
   Yes ☐  No ☒
   If yes, have this signed by the Dean of Science and Engineering.
   
   Approved ☐  Not Approved ☐

13. Sent to Provost Office.  
   (Original plus an electronic copy to Michele Duran at mlduran@usi.edu)

14. Received in Provost Office:  
   Date: 10/11/12

15. Notified Chair of University Curriculum Committee:  
   Date: 10/3/12

16. Curriculum Committee Meeting date to discuss petition:  
   Date: 11/7/12

17. Meeting date published in **USI Today**:  
   Date: 10/3/12

18. Received by Chair of Curriculum Committee:  
   University Curriculum Committee:  
   Approved ☐  Not Approved ☐

   Signature: ____________________________  
   Chair of Curriculum Committee  
   Date: __________________

19. Sent to Provost:  
   Date: ______________

20. Received by Provost:  
   Date: ______________

   Approved ☐  Not Approved ☒

   Signature: ____________________________  
   Provost  
   Date: __________________

21. Notice of approval by Provost published in **USI Today**:  
   Date: ______________

22. Notified Registrar of final approval:  
   Date: ______________
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Sem/Yr</th>
<th>CrHr</th>
<th>Grade</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 230</td>
<td>Calculus I</td>
<td></td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MATH 235</td>
<td>Calculus II</td>
<td></td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MATH 253</td>
<td>Princ. of Math. Logic</td>
<td></td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MATH 335</td>
<td>Calculus III</td>
<td></td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MATH 362</td>
<td>Linear Algebra</td>
<td></td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MATH 410</td>
<td>Intro. to Analysis</td>
<td></td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MATH 412</td>
<td>Abstract Algebra I</td>
<td></td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MATH 438</td>
<td>Theory of Probability</td>
<td></td>
<td>3</td>
<td></td>
<td>Prep for Actuarial Exam P/1</td>
</tr>
</tbody>
</table>

**Required Courses for the Actuarial Track (28 semester hours)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Sem/Yr</th>
<th>CrHr</th>
<th>Grade</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 241</td>
<td>Princ. of Statistics</td>
<td></td>
<td>3</td>
<td></td>
<td>Prereq. for FIN 305</td>
</tr>
<tr>
<td>ACCT 201</td>
<td>Accounting Princ. I</td>
<td></td>
<td>3</td>
<td></td>
<td>Prereq. for FIN 305</td>
</tr>
<tr>
<td>ACCT 202</td>
<td>Accounting Princ. II</td>
<td></td>
<td>3</td>
<td></td>
<td>Prereq. for FIN 305</td>
</tr>
<tr>
<td>ECON 208</td>
<td>Microeconomics</td>
<td></td>
<td>3</td>
<td></td>
<td>for VEE credit in Economics</td>
</tr>
<tr>
<td>ECON 209</td>
<td>Macroeconomics</td>
<td></td>
<td>3</td>
<td></td>
<td>for VEE credit in Economics</td>
</tr>
<tr>
<td>FIN 305</td>
<td>Business Finance</td>
<td></td>
<td>3</td>
<td></td>
<td>for VEE credit in Corporate Finance</td>
</tr>
<tr>
<td>FIN 461</td>
<td>Financial Management</td>
<td></td>
<td>3</td>
<td></td>
<td>for VEE credit in Corporate Finance</td>
</tr>
<tr>
<td>CS 201</td>
<td>Object-Oriented Prog. (Java)</td>
<td></td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>or CS 288</td>
<td>Object-Oriented Prog. (VB)</td>
<td></td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MATH 375</td>
<td>Interest Th. &amp; Math. Fin.</td>
<td></td>
<td>4</td>
<td></td>
<td>Prep for Actuarial Exam FM/2</td>
</tr>
</tbody>
</table>

**MATH Electives (15 semester hours)**

Select from upper level MATH electives approved by your advisor. For students earning a minor in Statistics, Math 436 may not be used to satisfy one of the three MATH electives for the Actuarial Track.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Sem/Yr</th>
<th>CrHr</th>
<th>Grade</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 441</td>
<td>Mathematical Statistics</td>
<td></td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MATH 475</td>
<td>Regression &amp; Time Series</td>
<td></td>
<td>3</td>
<td></td>
<td>for VEE credit in Applied Statistical Methods</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Sem/Yr</th>
<th>CrHr</th>
<th>Grade</th>
<th>Notes</th>
</tr>
</thead>
</table>

Total: 70 Hours  MAJOR GPA________
### UNIVERSE OF SOUTHERN INDIANA
### MATHEMATICS MAJOR – ACTUARIAL TRACK

**NAME:** ____________________________  **ADVISOR:** ____________________________

**Id #:** ____________________________  **MINOR:** ____________________________

<table>
<thead>
<tr>
<th>Sem/Yr</th>
<th>CrHr</th>
<th>Grade</th>
<th>Notes</th>
</tr>
</thead>
</table>

#### Required MATH Courses (30 semester hours)

- **MATH 230 Calculus I**
- **MATH 330 Calculus II**
- **MATH 335 Calculus III**
- **MATH 253 Princ. of Math. Logic**
- **MATH 412 Abstract Algebra I**
- **MATH 413 Linear Algebra**
- **MATH 438 Theory of Probability** Prep for Actuarial Exam P/1
- **MATH 441 Mathematical Statistics**
- **MATH 492 History of Mathematics**

#### Required Courses For Actuarial Track (31 semester hours)

- **MATH 241 Principles of Statistics** Prereq. for FIN 305
- **ACCT 201 Accounting Principles I** Prereq. for FIN 305
- **ACCT 202 Accounting Principles II** Prereq. for FIN 305
- **ECON 208 Microeconomics** for VEE credit in Economics
- **ECON 209 Macroeconomics** for VEE credit in Economics
- **FIN 305 Business Finance** for VEE credit in Corporate Finance
- **FIN 461 Financial Management** for VEE credit in Corporate Finance
- **CS 201 Object-Oriented Prog.**
- **CS 288 Microcomp.-Based Prog.**
- **MATH 375 Interest Theory & Math Fin.** Prep for Actuarial Exam FM/2
- **MATH 475 Regression & Time Series** for VEE credit in Applied Statistical Methods

#### Mathematics Electives (9 semester hours)

Select from: MATH 331, MATH 353, MATH 410, MATH 433, MATH 437, Math 436*, and other upper level electives approved by advisor.

- **MATH**
- **MATH**
- **MATH**

*For students earning a minor in Statistics, Math 436 may not be used to satisfy one of the three math electives for the Actuarial Track.

**Total:** 70 Hours **MAJOR GPA** ________
Question 6—Rationale for Program Modification for the Degree in Mathematics—Actuarial Track

The changes made to the Mathematics—Actuarial Track degree is the direct result of changes made to the degree in mathematics. This modification includes four items: moving Math 492, History of Mathematics, from a required course to an elective course; moving Math 410, Introduction to Analysis, from an elective course to one of the eight required math courses; removing the requirement that one of the electives must be selected from Math 410, Math 432 or Math 433; and increasing the number of math electives from 12 credit hours to 15 credit hours. The change in the number of electives in the math degree does not increase the number of credit hours for the Actuarial Track as this program was originally created with the requirement of five math electives. These proposed changes are the culmination of discussions that began with the implementation of our Assessment Plan in 2008, evaluative comments from our 2010 Program Review that included an external reviewer; the results from the 2011 and 2012 Major Field Tests, and the review of math curricula of our peer institutions.

The total number of credit hours for this degree did not change.