PETITION REQUIRED COURSE MODIFICATION

*See Handbook for definition of Petition-Required Course Modifications and for procedures to be followed for Memorandum-Required Course Modifications.

1. Provide a description of the course as it currently exists, including course title, number, credit hours, and prerequisites: Math 411, Theory of Numbers (3) The transition between problem-solving mathematics and mathematics which develops a theory. This course is rich in material useful for the secondary and elementary teacher. Prereq: Math 335

2. Proposed Course Title, if modified: unchanged

3. Proposed Course Description, if modified: Math 411, Theory of Numbers is an introduction to classical number theory. This course studies the fundamental properties of the integers and the solution of linear and quadratic equations over the integers. Topics include prime factorization, congruences, Diophantine equations, the theorems of Fermat and Euler, and quadratic reciprocity. The course is rich in material useful for secondary teacher of mathematics. Prereq: Math 253 and Math 335.

4. Proposed Course Prerequisites, if modified: Math 253, Principles of Mathematical Logic, and Math 335, Calculus III

5. Proposed Course Credit Hours, if modified (subject and number preferred) unchanged

6. Implementation Date: ☒ Fall ☐ Spring ☐ Summer 1 ☐ Summer 2 ☐ Year 2013

7. Attach rationale for the course modification(s).

8. Department faculty signatures (majority required). If an interdisciplinary program, a majority of each department must sign this form. Number of faculty in department(s): 10

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

10. Received by Chair of College Curriculum Committee:

   Approved ☑ Not Approved ☐

   Signature: ________________________________ Date: 10/1/12
11. Sent to the Dean of the College of \underline{\textbf{SE}}\underline{\textbf{E}}
   Approved \Box Not Approved \Box
   Signature: [Signature]
   Dean of College
   Date: 10/11/12

12. Sent to originator (originator responsible for items 13 through 15)
   Date: __________

13. Can the course be used to meet core curriculum requirements?
   Yes \Box No \xmark
   If yes, have this petition signed by the Director of University Core Curriculum for notification purposes.
   Signature: [Signature]
   Director, University Core Curriculum
   Date: __________

14. Is this course a part, or to be a part of teacher training? Yes \xmark No \Box
   If yes, this petition must be approved and signed by the Dean of Pott College of Science, Engineering, and Education.
   Approved \Box Not Approved \Box
   Signature: [Signature]
   Dean, Pott College of Science, Engineering, and Education
   Date: 10/11/12

15. Original petition plus electronic copy sent to Michele Duran, Provost’s Office:
   Date: __________

16. Received in Provost’s Office:
   Date: 10/3/12

17. Notification to Chair of Curriculum Committee of petition:
   Date: 10/3/12

18. Schedule Curricular Committee meeting date to discuss petition:
   Date: 11/7/12

19. Curricular Committee meeting date published online in USI Today:
   Date: 10/8/12

20. Received by Chair of Curriculum Committee for review:
   Approved \Box Not Approved \Box
   Signature: [Signature]
   Chair, Curricular Committee
   Date: __________

21. Petition provided to Provost for review:
   Approved \Box Not Approved \Box
   Signature: [Signature]
   Provost
   Date: __________

22. Notice of approval by Provost with publication in USI Today:
   Date: __________
Question 6—Rationale for Prerequisite and Course Description Change

The course description was changed to give more detail to those reviewing our course for transferability or for interest in enrolling in the course.

The prerequisites for Math 411 were changed to include Math 253, Introduction to Mathematical Logic. This course was created to give students an opportunity to learn the basic techniques of proof writing prior to enrolling in a more difficult upper-level course heavily dependent on understanding and writing mathematical proofs. Methods such as mathematical induction, proof by contradiction, and proof by exhaustion (among others) are studied in depth in Math 253. This information is used extensively in Math 411, Theory of Numbers. Students earning a major in mathematics have successfully completed Math 253; however as the number of students earning a math minor increases, so does the number of students entering Math 411 without having successfully completed Math 253. Students who have not successfully completed Math 253 are at a disadvantage as they are being asked to write proofs of abstract ideas without a foundation in proof writing.