MEMORANDUM

To: UGCC

From: Cecilia Knoll, Ph.D.
Department Head, Applied Mathematics

Date: March 20, 2008

Subject: Adding a course to the curriculum

Please consider the course addition MTH 1051, Introductory Discrete Mathematics. The course is, at least initially, intended for Computer Information Systems majors through University Alliance. Although many of the topics are the same as MTH 2051, Applied Discrete Mathematics, the MTH 1051 course is intended to be of less depth than MTH 2051. It is not applicable for credit for science or engineering majors.
Florida Institute of Technology

ADDAING A NEW COURSE TO THE CURRICULUM

This course is available for student registration only after the approval process has been completed.

SUBJECT MTH

COURSE NO. 1051

CREDIT HOURS 3

TERM TO BE ADDED TO THE FILE Fall 2008

CLASS HOURS 3

LECTURE HOURS 3

LAB HOURS

CONTACT HOURS (CEU ONLY)

DEPARTMENT Applied Mathematics

SCHEDULE TYPE Lecture

(e.g., Computer Sciences)

☐ COLLEGE OF AERONAUTICS–23
☐ COLLEGE OF PSYCHOLOGY AND LIBERAL ARTS–25
☒ COLLEGE OF BUSINESS–24
☐ COLLEGE OF SCIENCE–26
☐ COLLEGE OF ENGINEERING–01
☐ UNIVERSITY COLLEGE EXTENDED STUDIES–27

COMPUTER TITLE Restricted to 25 characters, including spaces

Intro Discrete Math

CATALOG TITLE Introductory Discrete Mathematics

CATALOG DESCRIPTION OF COURSE Limited to 350 characters, including spaces

Elementary coverage of discrete mathematics. Includes logical arguments, mathematical induction in proofs, sets and relations (extension to functions and their properties), elementary counting principles (inclusion-exclusion), permutations and combinations. Credit can only be applied toward business, communication, humanities, management, ...cont below

In addition, you may attach a course syllabus and/or more detailed description.

RESTRICTIONS

☒ Prerequisite MTH 1701

☐ Corequisite Course Number

☐ Prerequisite Course Number

☐ Corequisite Course Number

☐ Prerequisite Course Number

☐ Corequisite Course Number

GRADES TO BE ISSUED

☒ A, B, C, D, F

☐ A, B, C, D, F, CEU

☐ CEU

☐ S, U

☐ P, F

☐ Other

ADDITIONAL RESTRICTION

psychology or computer information systems degrees at Florida Tech.

(e.g., Major, Class Level, Department Head Approval)

If this course replaces a course currently offered in BANNER, please indicate old course information

SUBJECT Alpha Prefix (e.g., CSB)

COURSE NO. (e.g., 1301)

APPROVALS: Upon completion of appropriate department approvals, submit form to Chair, Graduate Council, or Chair, Undergraduate Curriculum Committee for approval below and forward to Catalog Director.

Original

Chair, Graduate Council

Date

Department Head/Program Chair

OR

Dean or Associate Dean

Date

Chair, Undergraduate Curriculum Committee

Date

CATALOG DIRECTOR

These changes/additions have been made for the

University/Extended Studies Catalog and entered into the

BANNER term named above.

Catalog Director

Date

REGISTRAR'S USE ONLY

SCACRE

SCADETL

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SCABASE

SCARIES

Operators Init

Date

 Florida Institute of Technology • Office of the Registrar
150 West University Boulevard, Melbourne, FL 32901-6975 • (321) 674-8114 • Fax (321) 674-7827

RG-371-0561
MTH 2020 Introductory Discrete Mathematics

Course Description:

Elementary coverage of topics in discrete math including logical arguments and the role of mathematical induction in proofs; sets and relations and their operations with the extension to functions and their properties; elementary counting principles including inclusion-exclusion, permutations and combinations. Credit cannot be applied toward any Florida Tech degree except business, communication, humanities, management, psychology or Computer Information Systems

Prerequisite: MTH 1701

Objectives:

1. understand the role of definitions and logical arguments within mathematical ideas
2. apply the principle of mathematical induction to basic problems
3. understand the basic formulation of sets and how they are combined
4. apply the topic of sets to the development of the definition of functions
5. investigate the construction and properties of functions
6. understand the principles of counting including inclusion-exclusion
7. apply the principle of counting to basic problems
8. understand the special counting problems of permutations and combinations
9. apply the principles of permutations and combinations to elementary probability

Course Outline

1. Mathematical propositions and the logic principles that combine them
2. Sets and their operations and consequences
3. Relations as an extension of sets and a precursor to functions
4. Function definitions, notations, operations and properties
5. Sequences as special functions with the natural numbers as the domain
6. Properties of sequences proven – Mathematical Induction applied
7. Necessity of counting in problem solving and the counting principles
8. Specialized counting used for permutations and combinations

Texts:


Grading

<table>
<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Homework</td>
<td>10%</td>
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<tr>
<td>Exams (4)</td>
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<tr>
<td>Final</td>
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