New Undergraduate Course Approval Cover Form
Montana State University

This four-page form collects basic information about the proposed new course, provides information on the approval process, and includes all required approvals. Additional information (see INFO sheet) is also required as part of the New Course Packet.

Proposed New Course Information

Requested Rubric, Course Number, Core Designation (if needed): EFIN 101
Example: PHL 361 RH

Course Title: Introduction to Financial Engineering
Abbreviated Course Title (≤ 30 chars): Intro to Fin Engineering
First Semester to be Offered: Spring 2015
Submitted by: Durward K. Sobek II
dsobek@ie.montana.edu
Submitter’s Contact Info: Phone, Email: x7140
Instructor: Myles Watts
Department: Ag. Econ. & Econ.
College: COA & CLS

New Course Review Process

Instructor completes the New Course Packet, with Core information if a Core designation is requested.

Instructor checks for “equivalent” course in the MUS system and recommends a common or unique course number.

Department Head’s signature indicates that course has been approved by the process used within the Department.

The Chair of the College Curriculum Committee signs to indicate College academic approval.

The College Dean signs to indicate that adequate resources are available to offer the course. Supporting information (Dean’s Statement) is typically required.

The New Course Packet (as PDF) is uploaded to the Provost’s Office server for distribution to other committees.

Course requests are sent to Curriculum and Program Committee (CPC). Core reviews are sent to appropriate Core subcommittee. Committees work in parallel when possible to speed approval process. Special topics courses (291, 491) skip the CPC review (limited to two years.)

Provost’s Office reviews the new course request. New courses are submitted to MUS for Common Course Number (CCN) review. Dean and Department informed upon approval.

Approved new course sent to Registrar for inclusion in the Catalog and Schedule of Classes

APPROVALS

Durward K. Sobek II
Signed Digitally by Durward K. Sobek II
Date 12/20/2013
Submitter

Ruhul Amin
Signed Digitally by Ruhul Amin
Date 1/16/2014
Department Head

Christine M. Foreman
Signed Digitally by Christine M. Foreman
Date 12/10/2013
Dean

Note: This diagram illustrates the typical flow path, but at any review step there can be a request for additional information or modifications. Careful review in early steps is the best way to speed the overall process. * Special topics courses (x91) require fewer signatures, but cannot be offered more than two times without committee review.
INFORMATION NEEDED FOR COMMON COURSE NUMBERING

The process for identifying a common course number for a new course is as follows:

1. Course learning outcomes are prepared for the new course.
2. The person submitting the new course request looks at the CCN website to see if a course with similar outcomes already exists in the MUS system.
   
   [www.mus.edu/Qtools/CCN/ccn_default.asp]
   
   - If a course exists with at least 80% of the same outcomes, the course is considered "equivalent" to the proposed new course, and the new course should use the existing rubric and course number.
   - If no "equivalent" course is found, the person submitting the new course request should identify a unique course number that has not been used by any other course in the MUS system.
3. The requested rubric and course number are submitted as part of the new course packet.
4. The Provost's Office submits the learning outcomes and the requested rubric and course number to the MUS to have a course number assigned to the course. (This will typically be the requested course number, but it could be changed.)
5. The assigned common course number is reported back to the person submitting the new course request.

Requested Rubric, Course Number, Core Designation (if needed):

Course Title: EFIN 101
Abbrev. Course Title (≤ 30 char): Introduction to Financial Engineering
Credits: 1
Department Offering Course: Ag. Econ. & Econ.
College: COA & CLS

Is this course "equivalent" to a course in the MUS System?: □ Yes  □ No
Learning Outcomes for the Course:

Students will:

- recognize the importance, usefulness and limitations of integrated financial statements.
- comprehend the value and importance of risk mitigation in financial decision making.
- identify the effects of mark-to-market requirements/regulations.
- describe the effects of inflation upon the interpretation and accuracy of traditional integrated financial statements.
- solve for the time value of money and credit models.
INFORMATION REQUIRED BY THE REGISTRAR

The data needed to enter the new course into the MSU Catalog and Schedule of Classes is collected on this page. Once the new course has been approved, this page is automatically forwarded to the Registrar for data entry.

Assigned Rubric, Course Number, Core Designation (if needed):

Course Title (for Catalog):

Course Title (for Schedule of Classes, 30 characters, max.):

First Semester to be Offered:

Restricted Entry/Consent of Instructor Required:

Instructor's GID (last 4 digits only):

Department Offering Course:

College:

Is the requested course number available? (x4155 to check):

Frequency of course offering:

Semester(s) offered (check all that apply):

Summer Options (check all that apply):

Credits by mode of instruction:

Lecture:

Seminar:

Independent Study:

Lab/Studio:

Recitation/Discussion:

TOTAL CREDITS:

Primary Mode(s) of Delivery:

Time and Location — Call the Registrar's Office at x4155 to find a time and location for the course.

Assigned Day(s):

Assigned Time(s):

Assigned Building:

Assigned Room:

Capacity (room capacity, or enrollment “cap”):

Co- and Pre-Requisites — Courses numbered 200 and above are normally expected to have prerequisites. When listing multiple prerequisites, please separate courses with “and” if both are required, or “or” if only one is required.

Prerequisite(s):

Co-Requisite(s):

Course Description — Provide a course description of 40 words or less for the MSU Catalog.

A seminar course surveying the financial engineering profession. Topics include an overview of career opportunities, problem solving processes, an introduction to the basic financial engineering processes, professionalism, and ethics.
DEAN'S STATEMENT

The reviewing committees are being asked to take a closer look at the resources required for each proposed new course. In many cases new courses will replace existing courses and the new course request is effectively resource neutral, however that is not always the case. For example, a new elective course that would result in distributing an existing student population across a larger number of courses would represent a significant increase in expenditures for the new course, and no increase in total student credit hours. A funding mechanism for such a course would need to be identified. The Dean's Statement is the place to document how the costs of the proposed new course will be covered.

The Financial Engineering program was recently (September 2013) approved by the Board of Regents. The new program will be managed jointly by departments in two colleges: the Department of Mechanical and Industrial Engineering in the College of Engineering and the Department of Agricultural Economics and Economics in the College of Agriculture. This course, Introduction to Financial Engineering- EFIN101, is part of the new program. Please see the Dean's statement from the College of Agriculture, November 14 2013- "I fully support approval of EFIN 101, EFIN 301 and EFIN 401 as new courses. These courses will be integral to the newly developed Financial Engineering program; an interdisciplinary program between the College of Agriculture (COA) and the College of Engineering. The College of Agriculture will financially support the initial development of these courses with either reallocated Agriculture Economics and Economics resources or possible new resources obtained through the normal college or university resource distribution process. Steady state cost of offering the courses will be justified through growth of the program." The College of Engineering also supports the development of these new courses in conjunction with the College of Agriculture.
New Undergraduate Course Narrative
Montana State University
Updated August 23, 2012

Please provide the following information in narrative format. Substantive responses to all criteria are required. Although not required, a draft syllabus can also be helpful to the committee in understanding the details of the proposed course.

General Course Information
1. Requested Rubric, Course Number, and Core Designation (if any)

  > EFIN 101

2. Course Title

  > Introduction to Financial Engineering

3. Provide a general description of the course explaining the need for the course, its goals, and its overall structure. This is the most important part of the application and should offer a good sense of what students will experience by taking this class.

  > A seminar course surveying the financial engineering profession. Topics include an overview of career opportunities, problem solving processes, an introduction to the basic financial engineering processes, professionalism, and ethics.

4. Based on what types of student work (e.g., tests, homework assignments, papers, performances, etc.) will grades be determined?

  > Given the seminar structure of the course, grades are determined by attendance and participation in class discussions and homework assignments. See attached syllabus.

5. Provide a course content outline containing all major topics plus a brief description of the material to be covered under each major topic heading.

  > See attached syllabus.

6. List required texts or other required references.

  > See attached syllabus.

7. What are the estimated enrollment and student credit hour (SCH) production?
   [SCH = (enrollment * credits)]

  > Enrollment = 15; SCH = 15
8. Will there be an enrollment cap that restricts enrollment below the level of student demand? If so, what is the enrollment cap and why is it necessary?
   > No.

9. Will course be a “restricted enrollment” course? If so, why is restricted enrollment necessary?
   > No.

10. Describe how the success of the course will be evaluated? (“End-of-semester student evaluations” is not the answer to this question. How will the instructor determine if the learning outcomes are being met, and how will the department determine if the course is fulfilling its intended purpose?)
   > Student enrollment, accreditation review, financial engineering internal and external advisory committees, student and industry feedback.

11. Is the instructor a member of the regular faculty (i.e., tenured or tenure-track)? If no, please describe the instructor’s qualifications, attach a Vita, and provide a separate letter of support, signed by the department head (or appropriate unit director), addressing the instructor’s qualifications to teach this course.
   > Regular tenured faculty member.

**Level of Offering**

12. Has the course been offered previously under 280/291 or 480/491? If so, when? Under what number? What was the enrollment? What level of students took the course?
   > No.

13. Justify the level of course offering.

   > Course is of an introductory nature. It has college algebra (M 121) as its only prerequisite.

**Relationship to other Courses, Curricula, and Departments**

14. Does this course build on or interrelate with other courses in your curriculum or related curricula? If so, which ones?

   > It is not related to other courses. EFIN 101 will provide a foundation for taking EFIN 301 and EFIN 401.

15. Do the topics in the proposed course duplicate or reiterate those in other courses in this or any other department? If so, how do the coverage and educational experience differ and how is this duplication or reiteration justified? Also, what liaison (which is expected in cases of apparent overlap) has been conducted with other departments? Report reactions, both favorable and unfavorable.

   > No, the material is not covered in any other course offered by MSU. The proposed major and courses in financial engineering have been reviewed by the finance department in the College of Business at MSU and the business faculty at U of M at Missoula. They found that the material is sufficiently different
to not overlap with existing finance courses. No one-credit offerings exist introducing the field of financial engineering to interested students.

16. What programs (departments, colleges) will be impacted by the SCH production of this course? That is, where do you think the SCH in the proposed course are likely to come from? If the expected SCH production of the proposed course is greater than 1000, and the SCH are expected to come from other colleges, what steps have been taken to make the other units aware of the potential loss of SCH? Report reactions, both favorable and unfavorable.

> The financial engineering major is offered jointly by the Department of Agricultural Economics and Economics and the Department of Mechanical and Industrial Engineering; both departments will be sources of the SCH for this major, along with new students.

17. If this proposed course has a significant interdisciplinary component, please explain briefly. Otherwise, indicate n/a.

> This course is at the crossroads of economics and engineering. The principles of financial engineering analyzed in this course are constructed through the combination of engineer’s strong system modeling is used in combination with financial economic principles.

Students Served
18. Does the proposed course serve majors only? Non-majors only? Both majors and non-majors? What other majors might be interested in this course? State areas or disciplines to be served and indicate the specific efforts that will be made to make the course material relevant to all disciplines served.

> Predominantly majors and minors. Some students from other fields such as economics, ag. bus., business, and engineering disciplines will periodically enroll.

Resources
19. What additional resources (e.g., additional instructional FTE, required technologies), if any, will be required to offer this course? Are there any resource issues for the students who will take the course (e.g., required technologies, travel, on-line access requirements)? Will there be an additional fee charged to students taking this course? Please explain.

> None. Existing faculty will teach this course.

20. What existing information resources – print (books, journals, documents), audiovisual (videos, DVDs, CDs or other), and/or electronic (e-books, databases, electronic journals and web sites) – provided by the MSU Libraries will be used by students in this course? Provide examples as well as descriptive information. If additional information resources are necessary, please discuss those acquisitions with the library (x6549 Collection Development) at least three months prior to the beginning of the semester in which this course will be taught.

> None.

Other Supporting Material
21. Include any additional information you feel is needed to support this request.
> The course was part of the proposal for a new degree program which was discussed widely with the Colleges of L&S, Ag, Engineering and Business; and was vetted through Faculty Senate before reaching the Board of Regents. See the attached BOR application for the financial engineering major.
EFIN 101
Introduction to Financial Engineering
Spring 2015

Instructor: Myles Watts
Office: 104 Linfield Hall
Phone: 406-994-3780
E-mail: mwatts@umontana.edu

1. Course Objectives

In this class we will present review background material essential to understand the context of financial decision making and the implementation of financial engineering in a firm setting. The class is designed to facilitate an understanding and utilization of the informational content contained in traditional integrated financial statements in making financial decisions and addressing the risk inherent in those decisions. The effects of off-balance sheet items and market to market valuation will be incorporated as will the effects of inflation and regulatory/ethical considerations. The mathematics of credit and time value will be incorporated into the material where appropriate.

2. Prerequisite: M 121

3. Learning Outcomes:

Students will:

- recognize the importance, usefulness and limitations of integrated financial statements.
- comprehend the value and importance of risk mitigation in financial decision making.
- identify the effects of mark-to-market requirements/regulations.
- describe the effects of inflation upon the interpretation and accuracy of traditional integrated financial statements.
- solve for the time value of money and credit models.

4. Grading

The class will be graded as on a standard grading scale dependent upon class attendance (10%), completion of assigned problem sets/readings (80%), and class participation (10%). The class will meet once per week throughout the semester. Several readings will be assigned with a requirement of a written summary and assessment of the content of the reading. Students will be periodically assigned problem sets and will be expected to provide notebooks/binders with completed problem sets and the student's reading assessments for instructor inspection.

TENTATIVE COURSE OUTLINE

A. Accounting Statements
   a. Financial Statement or Balance Sheet
   b. Income or Profit and Loss Statement
   c. Source and Uses of Funds
B. Reconciliation of Accounting Statements
C. Off Balance Sheet, Notes, Remarks, and Hedge Fund Accounting
D. Mark to Market Valuation
E. Review of Financial Highlights of a Publicly Traded Corporation
F. Inflation and Accounting statements
G. Mathematics of Credit
H. Mathematics of Present Value