Program Change Proposal Form

Faculty Member Preparing: Clarence W. Lienhard

1. Date: 02/7/2014
   Department: Mathematics and Computer Information Science

2. Rationale for change (include relevant assessment data to support this proposal):

   The Bachelor of Science in Mathematics with an Applied Mathematics Concentration must prepare students for varied career paths. So to provide more flexibility in student’s programs the program will now require students to take one course from MA 3308 and MA 3311 and to take a two course 8 credit lab science sequence instead of being required to take MA 3308, MA 3311, MA 3312, PHY 2210, and PHY 2211. This allows the upper division electives to be increased from 12 to 18 credits. Return to allowing between 1 and 6 credits at the 3000 – 4000 level from exactly one of the prefixes PHY, CHM, BI, CIS, or ECO for those upper division electives to promote double majors. Note the remaining semester hours (between 12 and 18) must be from the prefix MA at the 3000 – 4000 level.

3. Old Degree and Program Title (attach an old ER): BS Mathematics Applied Mathematics Concentration
   New Degree and Program Title (attach a new ER): BS Mathematics Applied Mathematics Concentration

   List all changes:

   a. Require students to take one course from:
      i. MA 3308 Operations Research
      ii. MA 3311 Differential Equations I

   b. Drop the requirement of MA 3312 Differential Equations II

   c. Drop the requirement of PHY 2210 General Physics I

   d. Drop the requirement of PHY 2211 General Physics II

   e. Require a two course 8 credit lab science sequence from

      f. BI 1110 – ZOOLOGY
         BI 1130 – BOTANY
         OR
         • CHM 1101 - INTRODUCTORY CHEMISTRY
         • CHM 1102 - ORGANIC AND BIOCHEMISTRY
         OR
         • CHM 1111 - GENERAL CHEMISTRY I
         • CHM 1112 - GENERAL CHEMISTRY II
         OR
         • PHY 1191 - PHYSICS I
         • PHY 1192 - PHYSICS II
         OR
         • PHY 2210 - GENERAL PHYSICS I
         • PHY 2211 - GENERAL PHYSICS II

   g. Require 18 credits of upper level major related electives by advisement. Between 1 and 6 credits at the 3000 – 4000 level from exactly one of the prefixes PHY, CHM, BI, CIS, or ECO may be used for upper level major related electives. The remaining semester hours (between 12 and 18) must be from the prefix MA at the 3000 – 4000 level.

4. Program Description for Catalog (if changed):
Draft 01/30/2014

5. Program Objectives (if changed):

6. Program Learning Outcomes (if changed):

7. Impact on other programs (if any): None

8. New library resources needed? Yes  X  No  If yes:
   Signature of appropriate librarian indicating needs can be met:

8. New Technology Resources Needed? Yes  X  No  If yes:
   Signature of Director of Information Technology indicating needs can be met:

9. New Equipment resources needed? Yes  X  No  If yes:
   Describe Equipment: ________________________________
   Source of funding: ________________________________

10. Requested Date to be Offered: Fall 2014

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MU Form A43C – Effective 4/1/01
Old Evaluation Record

Applied Mathematics Concentration Courses

MA 2231 - CALCULUS I
MA 2232 - CALCULUS II
MA 2233 - CALCULUS III
MA 3260 - DISCRETE STRUCTURES
MA 3280 - LINEAR ALGEBRA AND MATRIX THEORY
MA 3308 - OPERATIONS RESEARCH
MA 3311 - DIFFERENTIAL EQUATIONS I
MA 3312 - DIFFERENTIAL EQUATIONS II
MA 3314 - APPLIED PROBABILITY AND STATISTICS
PHY 2210 - GENERAL PHYSICS I
PHY 2211 - GENERAL PHYSICS II

Mathematics Electives

Take 12 credits of Upper Division (3000 or 4000 level) courses from the MA prefix

New Evaluation Record

Applied Mathematics Concentration Courses

MA 2231 - CALCULUS I
MA 2232 - CALCULUS II
MA 2233 - CALCULUS III
MA 3260 - DISCRETE STRUCTURES
MA 3280 - LINEAR ALGEBRA AND MATRIX THEORY
MA 3314 - APPLIED PROBABILITY AND STATISTICS

A two course 8 credit lab science sequence from

- BSC 1121 - HUMAN ANATOMY AND PHYSIOLOGY I
- BSC 1122 - HUMAN ANATOMY AND PHYSIOLOGY II
- CHM 1101 - INTRODUCTORY CHEMISTRY
- CHM 1102 - ORGANIC AND BIOCHEMISTRY
- CHM 1111 - GENERAL CHEMISTRY I
- CHM 1112 - GENERAL CHEMISTRY II
- PHY 1191 - PHYSICS I
- PHY 1192 - PHYSICS II
- PHY 2210 - GENERAL PHYSICS I
- PHY 2211 - GENERAL PHYSICS II

Take one course from the following:

MA 3308 - OPERATIONS RESEARCH
MA 3311 - DIFFERENTIAL EQUATIONS I

Upper level major related electives by advisement - 18 credits

Between 1 and 6 credits at the 3000 – 4000 level from exactly one of the prefixes PHY, CHM, BI, CIS, or ECO may be used for upper level major related electives. The remaining semester hours (between 12 and 18) must be from the prefix MA at the 3000 – 4000 level.