APPLICATION FOR CHANGE IN EXISTING COURSE: MAJOR & MINOR

1   Submitted by College of <u>LCC</u> Date <u>9/12/03</u>

   Department/Division offering course <u>Physical Sciences and Engineering Technologies Division</u>

2.   Changes proposed:

   (a)   Present prefix and number <u>MAH 151</u> Proposed prefix and number <u>MAH 155</u>

   (b)   Present Title <u>Applied Mathematics</u>

       New Title <u>Applied Mathematics</u>

   (c)   If course title is changed and exceeds 24 characters (including spaces), include a sensible title (not to exceed 24 characters) for use on transcripts:

       n/a

   (d)   Present credits: <u>3</u> Proposed credits: <u>3</u>

   (e)   Current lecture: laboratory ratio <u>n/a</u> Proposed: <u>n/a</u>

   (f)   Effective Date of Change: (Semester & Year) <u>Fall 2004</u>

3.   To be Cross-listed as   _____
                   (Prefix and Number)   (Signature: Dept. Chair)

4.   Proposed change in <u>Bulletin</u> description:
   (a)   Present description (including prerequisite(s):
       The concepts of ratios and proportions, units and conversions, linear equations in two variables, percents, interest, descriptive statistics, and logical symbolism are covered. Emphasis is on application in the various technologies. Prerequisites: MAH 070, or equivalent as determined by placement examination.

   (b)   New description:
       After a review of rational numbers, the concepts of ratios and proportions, scientific notation, units and conversions, linear equations in two variables, percents, interest, and descriptive statistics are covered. Emphasis is on application in the various technology programs. Prerequisites: MAH 070, or equivalent as determined by placement examination.

   (c)   Prerequisite(s) for course as changed:
       No change

5.   What has prompted this proposal?
       This course can be used to fulfill the general education mathematics requirements for students enrolled in the following technical programs: Dental Laboratory Technology, Dental Hygiene, Information Management and Design, Nursing, and Respiratory Care. This proposed change is to update the topics covered to include material requested by faculty in these areas. Since this course can only be used as a general education course

by students in technical programs, more applications, particularly in the health fields, have been added.

6. If there are to be significant changes in the content or teaching objectives of this course, indicate changes:
    Logical symbolism was removed from the current course outline and consumer finance was de-emphasized. New content includes a review of fractions and expanded topics in ratios, proportions, and measurements, which will emphasize applications in health related fields.

7. What other departments could be affected by the proposed change?
    Dental Laboratory Technology, Dental Hygiene, Information Management and Design, Nursing, and Respiratory Care.

8. Will changing this course change the degree requirements in one or more programs?
    ☒ No ☐ Yes (If yes, attach an explanation of the change.)*

9. Is this course currently included in the University Studies Program? ☒ No ☐ Yes (If yes, please attach correspondence indicating concurrence of the University Studies Committee.)

10. If the course is a 100-200 level course, please submit evidence (e.g. correspondence) that the Community College System has been consulted.
    Email was sent to Carolyn O'Daniel (see attachment).

11 Is this a minor change? ☒ No ☐ Yes (NOTE: See the description on this form of what constitutes a minor change. Minor changes are sent directly from the Dean of the College to the Chair of the Senate Council. If the latter deems the change not to be minor, it will be sent to the appropriate Council for normal processing.)

12. Within the Department, who should be consulted for further information on the proposed course change?

    Name: <u>Ana Leon/Larry Mullins</u> Phone Extension: <u>4122/4124</u>

The <u>Minor Change</u> route for courses is provided as a mechanism to make changes in <u>existing</u> courses and is limited to one or more of the following:
    a. change in number within the same hundred series;
    b. editorial change in description which does not imply change in content or emphasis;
    c. editorial change in title which does not imply change in content or emphasis;
    d. change in prerequisite which does not imply change in content or emphasis;
    e. crosslisting of courses under conditions set forth in item 3.0;
    f. correction of typographical errors. [<u>University Senate Rules</u>, Section III - 3.1]

Course Outline: (Two-level outline required)
- I.   Review
  - A.   1.   Fractions
  -         2.   Decimals
- II.   Percents
  - A.   Change a fraction/decimal to a percent
  - B.   Change a percent to a fraction/decimal
  - C.   Percent change, percent markup, and percent equation
- III.   Linear equations
  - A.   Slope
    - 1.   From two points
    - 2.   From an equation
    - 3.   From a graph
  - B.   Graps of lines
    - 1.   By plotting points
    - 2.   By using the x- and y-intercepts
    - 3.   By using the slope and y-intercept
  - C.   Equations of Lines
    - 1.   From two points
    - 2.   From a point and slope
    - 3.   From a graph
  - D.   Applications
- IV.   Systems of linear equations
  - A.   By graphing
  - B.   By using the substitution method
  - C.   By using the elimination method
  - D.   Applications
- V.   Exponents
  - A.   Rules of Exponents
  - B.   Simplify algebraic expressions
  - C.   Scientific Notation
    - 1.   Write a number in scientific notation
    - 2.   Change a number in scientific notation to decimal notation
- VI.   Conversions
  - A.   English
  - B.   Metric
  - C.   Apothecary
  - D.   Household
  - E.   Pennyweight system
- VII.   Ratios and proportions
  - A.   Applications
  - B.   Prescription labels
  - C.   Dosage calculations
    - 1.   By body weight
    - 2.   By body surface area
  - D.   Preparation of solutions
- VIII.   Statistics
  - A.   Sampling techniques
    - 1.   Random sampling
    - 2.   Systematic sampling

3.   Cluster sampling
                    4.   Stratified sampling
                    5.   Convenience sampling
              B.   Uses and misuses of statistics
              C.   Frequency distributions
              D.   Statistical graphs
                    1.   Circle graphs
                    2.   Histogram
                    3.   Frequency polygon
              E.   Measures of central tendency
              F.   Measures of dispersion
              G.   The normal curve
        IX.   Interest
              A.   Simple interest
              B.   Compound interest
              C.   Applications

2.   List of Experiments/Activities: (If laboratory or clinic is involved)
        n/a

3.   Changes in Suggested Learning Resources:
        n/a

4.   Impact of Change on Enrollment:
        n/a

5.   For Inclusion on LCC General Education List:
      A.   Degree Area (AA/AS or AAS or both)
            AAS
      B.   Competency Area
            Mathematics
      C.   General Education Competency Statement (List and provide examples of implementation methods/activities)
            General Education Outcomes Statement (outcomes, course objectives, and instructional objectives for the course)

            Communicate effectively

            Learning Outcome: Use technology to process information
                Course Objective: Use appropriate technology, such as calculators, as a tool to assist with numerical calculations.
                    Instructional Objective: Students will learn through lectures, class discussions, and completed homework assignments the proper use of calculators to assist with numerical calculations involving measurement problems, calculating proper dosages in the various technologies.

            Think critically

            Learning Outcome: Demonstrate problem solving skills
                Course Objective: Use descriptive statistics to organize and analyze data.
                    Instructional Objective: Students will learn through lectures, class discussions, and completed homework assignments basic statistical concepts.

            Learning Outcome: Integrate knowledge
                Course Objective: Make the connections between measurements and dosages.
                    Instructional Objective: Students will learn through lectures, class discussions, and

completed homework assignments how to find the appropriate units of measure and calculate proper dosages.

Learn Independently

Learning Outcome: Apply learning
Course Objective: Demonstrate an understanding on how to solve application problems.
Instructional Objective: Students will learn through lectures, class discussions, and completed homework assignments how to solve application problems in health related fields.

Examine relationships in diverse and complex environments

Learning Outcome: Use mathematics to analyze physical relationships
Course Objective: Convert between various units of measure.
Instructional Objective: Students will learn through lectures, class discussions, and completed homework assignments the proper use of conversion factors to change between various units of measure involving the English, metric, apothecary, household, and pennyweight systems.

D. Across the Curriculum Competencies (List and provide examples of implementation methods/activities)
n/a

6. For Removal from General Education List:
A. Competency Area
n/a
B. Rationale
n/a

7. For Inclusion on University Studies List: (A syllabus must be attached.)
A. Area
n/a
B. Course Competencies
n/a
C. Description of Writing Component
n/a

If a course has not been revised during the last five (5) years, the major change route must be used.

<u>Signatures of Approval</u>:

Department Chair: _____*Cindy Barber*_____ Date: _10/15/03_

Dean of the College:_____ Date: _10-21-03_

Date of Notice to the Faculty:_____

Undergraduate Council:_____ Date:_

Graduate Council:_____ Date:_

Academic Council for the Med. Ctr:_____ Date:_

Senate Council:_____Date of Notice to Univ. Senate:_
                       (Chair)

ACTION OTHER THAN APPROVAL:_____

Adopted: September, 1989