SYLLABUS, MATH 160

Class: MATH 160, Calculus for Physical Scientists I

Meeting Times: 4 hours in the classroom per week, 1 extra hour per week (attendance not mandatory) in the laboratory. Three midterms and a final. Details about scheduling can be found on the course Information and Policy Document for the specific section and semester.

Course Description: Limits, continuity, differentiation, and integration of elementary functions with applications; conic sections.

Prerequisite: (MATH 124 with a minimum grade of B) and (MATH 126 with a minimum grade of B). Credit allowed for only one of the following courses: MATH 141, MATH 155, MATH 159, or MATH 160

Course Policies

Course Policies on textbook choice, grading, scheduling, due dates and deadlines, instructor and contact information, office hours and other semester-dependent information will be given in the information and policy document for the specific section and semester which will be handed out in class or be made available on the course web page.

Alternate Exams

All exams must be taken at the time stated on the syllabus, which are known to not conflict with any other CSU classes.
The only exceptions are conflicts with any university approved absence or events beyond your control that cannot be rescheduled (e.g. hospitalization). In either case it is the students responsibility to inform the instructor in due course (well ahead of a conflict with a university events, or as soon as possible in case of a medical emergency) of this conflict and to provide appropriate written documentation. Students seeking an exemption from attending class or completing assigned course work for a religious holiday will find information at `http://oeo.colostate.edu/ religious-accommodation`

Academic Integrity

This course will adhere to the CSU Academic Integrity Policy as found on the Student' Responsibilities page of the CSU General Catalog and in the Student Conduct Code. By handing in homework, lab reports, and exams you certify that this is your own work. You are encouraged to discuss homework solution strategies and laboratory write-ups with fellow students, but the final write-up must be your own. Misrepresenting someone elses work as your own (plagiarism; this includes submitting work from a Solutions Manual or an on-line homework web site as your own), possessing or using unauthorized reference information in any form that could be helpful while taking an exam (for example a calculator not explicitly permitted), or doing assigned problems with the aid of a computer algebra system that has not explicitly been permitted are examples of cheating.
At a minimum, violations will result in a grading penalty in this course and a report to the Student Resolution Center.

Disabilities

Colorado State University is committed to providing reasonable accommodations for all persons with disabilities. Students with disabilities who need accommodations must first contact Resources for Disabled Students before requesting accommodations for this

class. Resources for Disabled Students (RDS; http://www.rds.colostate.edu) is located in room 100 of the General Services Building. Their phone is (970) 491-6385 (V/TDD). Students who need accommodations in this course must contact the instructor in a timely manner (at least one week before examinations) to discuss needed accommodations.

Learning Objectives

The Colorado Commission on Higher Education has approved MATH 160 for inclusion in the Guaranteed Transfer (GT) Pathways program in the GT-MA1 category. For transferring students, successful completion with a minimum C- grade guarantees transfer and application of credit in this GT Pathways category. For more information on the GT Pathways program, go to http://highered.colorado.gov/academics/transfers/gtpathways/curriculum.html.

GT Pathways Mathematics (GT-MA1) Content Criteria:

a) Demonstrate good problem-solving habits, including:

- Estimating solutions andrecognizing unreasonable results.
- Considering a variety of approaches to a given problem, and selecting one that is appropriate.
- Interpreting solutions correctly.

b) Generate and interpret symbolic, graphical, numerical, and verbal (written or oral) representations of mathematical ideas.

c) Communicate mathematical ideas in written and/or oral form using appropriate mathematical language, notation, and style.

d) Apply mathematical concepts, procedures, and techniques appropriate to the course.

e) Recognize and apply patterns or mathematical structure.

f) Utilize and integrate appropriate technology.

GT Pathways Mathematics (GT-MA1) Competencies:

Quantitative Literacy

Interpret Information

  a. Explain information presented in mathematical forms (e.g., equations, graphs, diagrams, tables, words).

Represent Information

  a. Convert information into and between various mathematical forms (e.g., equations, graphs, diagrams, tables, words).

Perform Calculations

  a. Solve problems or equations at the appropriate course level.
  b. Use appropriate mathematical notation.
  c. Solve a variety of different problem types that involve a multi-step solution and address the validity of the results.

Apply and Analyze Information

  a. Make use of graphical objects (such as graphs of equations in two or three variables, histograms, scatterplots of bivariate data, geometrical figures, etc.) to supplement a solution to a typical problem at the appropriate level.
  b. Formulate, organize, and articulate solutions to theoretical and application problems at the appropriate course level.

   c. Make judgments based on mathematical analysis appropriate to the course level.

Communicate Using Mathematical Forms

   a. Express mathematical analysis symbolically, graphically, and in written language that clarifies/justifies/summarizes reasoning (may also include oral communication).

Problem Solving

Define a problem

   a. Construct a detailed and comprehensive problem statement or goal.

   b. Identify relevant contextual factors.

Propose a Strategy

   a. Identify reasonable approaches to solving the problem within the given context.

Evaluate Potential Strategies

   a. Provide an evaluation of the potential strategy(ies) which may include:

      i. the history of the problem,
      ii. the logic behind the potential strategy(ies),
      iii. the feasibility of the proposed strategy(ies), and
      iv. the potential impacts of the proposed strategy(ies).

   b. Choose a feasible strategy.

Apply a Strategy

   a. Implement chosen approach(es).
   b. Gauge success of the chosen strategy(ies) and revise as needed.

Evaluate Results

   a. Discuss and review results relative to the context of the problem.
   b. Make recommendations for further work (where applicable).