

Professor: Dr S.P. Glasby

Course Information

Office: Rm 119, Bouillon Hall.
Office Hrs: At times outside office, or by appointment.
URL: <http://www.cwu.edu/~glasbys/>
Text: Thomas' Calculus: Early Transcendentals, 11th ed., Addison Wesley
Assessment: Test 1 (35%); Test 2 (35%); Final Exam (30%).
Dates: T1: Thu Jan 31; T2: Thu Feb 28; E: March 13??14??, 8–10 a.m.
Safari: <http://portal.cwu.edu/> for exam time, and final grades
Other dates: http://www.cwu.edu/~regi/course_information.html

Calculus I (Math 172) is an introduction to differential calculus. It is the first of a four course sequence: Calculus II covers integral calculus. Differential calculus is useful for studying rates of change of real-valued functions, and their maxima and minima. This course has many applications as real-valued functions, and rates of change, arise frequently in the natural sciences, economics, technology, and of course in mathematics. Calculus I requires that you to know basic algebra. If you have forgotten any of it, then review it now! Go to <http://www.cwu.edu/~glasbys/>, follow the **teaching** link. There you can test your basic algebra (you should score at least 33 out of 36). Also every student should visit the link to **common mathematical errors**. Avoiding these errors is an excellent way to improve your grade!

Calculus requires a higher level of mathematical sophistication than the previous mathematical courses you have taken. For this reason, students all over the world struggle when they first meet calculus. If you can not devote at least 10 *productive* hours of work per week to this course, then I recommend you take this course later when you can devote the necessary time and effort.

Calculators and computers can be very useful as an aid to computation, and visualization, and as a laboratory for quickly exploring new ideas. I encourage the intelligent use of calculators and computers. My discussions about calculator usage will be confined to the TI83 Plus. You will likely need to improve the accuracy and speed of your arithmetic: calculators are not allowed on tests and the final exam, see the useful links on my homepage. In particular, there exist links for practising arithmetic and testing algebraic skills.

We shall cover chapters 1–4. I should stress though that the lecture notes, not the textbook, form the body of examinable material. I strongly encourage you to read the relevant parts of the textbook *before* attending lectures, review your lecture notes *after* each lecture, and do all the assigned problems! The way to become a good violin player is to practice. To become good at this course (and hence pass) you must

practice. You will learn much more doing the exercises yourself than watching an expert solve them for you!

If you are unable to attend a lecture, you should get a copy of the notes from a classmate *who takes good notes*. Consider forming your own study groups: you can learn a lot by explaining solutions to a friend, and by hearing solutions.

After each test I will post adjacent to my office a list of scores and approximate grades, so you can determine your relative position in the class. You should double-check the time of the final exam by using Safari. The exam will be in our assigned classroom.

Students requiring special accommodation, because of a physical or mental disability, should see me in the first week of the course. Also, if you are quite sick or suffer a notable hardship, then please let me know promptly. Claims of lengthy hardship that are disclosed the day before the final exam receive less sympathy. Although the Registrar will notify you of your final grades, you can find out your grades earlier by using Safari.

I plan to make each **Tuesday** a **problem-solving** class. Please bring the questions and your solutions on these days. In order to closely relate the homework problems to the lecture material, I shall hand out my own problems (and solutions). While this lessens the need to own a textbook, it does not lessen the need to read textbooks that are complementary to the lectures. Besides the textbook, the library has a number of excellent calculus textbooks. I strongly encourage you to read the relevant parts of your textbook *before* attending lectures, and to do all the assigned homework problems! Moreover, your solutions should be well explained, well set out, and neatly written as if on an exam. If you have never before written a good solution, you are unlikely to do so on an exam. The way to learn how to write good solutions is to practice and be self-critical. My solutions will look easy, only when you struggle with the problems will you realize the difficulties. We will use the graphical calculator TI83-Plus as an aid for learning. Excellent online plotters are available at <http://wims.unice.fr/wims/>. There are many ways to learn calculus which are complementary to the lecture series. For software and web tutorials see my homepage.

The Academic Skills Center (Hertz) is a useful source of help (hours: Mon-Thu 1-4 p.m., Tue and Thu 6-8 p.m.) A list of private mathematics tutors may be obtained from the Mathematics Secretary (BU108). You may qualify for free tutoring. See the Academic Achievement Program: <http://www.cwu.edu/~aap/campus.html>.

A brief description of the course content is: limits; slopes of tangent lines; velocity and acceleration; derivatives applied to graphing functions; the mean value theorem; the exponential and logarithmic functions; exponential growth and decay. The “course outcome” or “student learning objective” is that passing students have a reasonable mastery of these subjects.