Math 154   Pre-Calculus II   Fall 2010

Professor: Dr S.P. Glasby

Course Information

Office:	BU 119 (office hours listed adjacent to door).
Lectures:	M–F 1 p.m., BU 144.
Text:	Cohen, Pre-calculus: a problems-oriented approach, 6th Ed., 2005
Assessment:	Test 1 (5%); Test 2 (5%); Test 3 (40%); Final exam (50%).
Required:	Passing students average $\geqslant 50\%$ on prereq. knowledge tests 1, 2
Dates:	T1 Fri Sep 24, T2 Mon Sep 27, T3 Thu Nov 4, E Wed Dec 8 12-2??
UMC:	Hertz 104; Mon & Wed 2-6 p.m., Tue & Thu 2-8 p.m;
	Library Fishbowl: Sun 5-8 p.m. http://www.cwu.edu/~mathcenter/
URL:	http://www.cwu.edu/~glasbys/

Precalculus II (or Math 154; formerly Math 163.2) is the final precalculus course. It concentrates on trigonometry and related applications. Trigonometry is the science of the relationships between the sides and angles of a right-angled triangle. It has applications to any field involving geometry e.g. building, navigation, mechanics, circular motion, calculus etc. Our applications include complex numbers, analytic geometry, navigation and mechanics.

Precalculus II contributes "basic skills" towards your general education program. It requires you to know basic algebra. If you obtain less that 33 out of 36 on the test http://www.sci.wsu.edu/math/HS/problems.html, then you must revise before taking the course! All students should review a list of common mathematical errors at http://www.cwu.edu/~glasbys/, follow the teaching link.

We will use the graphical calculator TI83 Plus as an aid for learning. However, in an effort to strengthen mental computations and improve quantitative reasoning the exams with be without a calculator.

We will cover chapters $6, 7, 8, 9, 10$ of the textbook. As always though, 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* the lecture, and do *all* the assigned problems! The way to become a good violin player is to practice. To master the material (and hence pass) you must practice. You will learn much more doing the exercises yourself than watching an expert solve them for you! The university expects (as I do) that you spend at least 10 hours per week of private study (reading the text, doing homework, correcting your notes) in addition to the 5 class hours per week.

If you are unable to attend a lecture, make sure you get a copy of the notes from a classmate. I urge you to form your own study groups: you can learn a lot by explaining solutions to a friend, and by hearing solutions. You will find (1) "The pre-calculus

problem solver," in the Reserve section of the Library, and (2) 12 "Contemporary precalculus" video tapes (see the Mathematics Secretary). The book (1) has a wealth of worked examples, and can be borrowed for up to 2 hours. The University Math. Center (Hertz 104) is a useful source of help (hours: listed above). A list of private mathematics tutors may be obtained from the Mathematics Secretary (BU116).

In addition to the three tests mentioned above, there will be a comprehensive two hour final exam during the exam week. Your final grade is given by the formula $t_1 + t_2 + t_2 + e$ where t_1, t_2, t_3, e are scalled to give 5%, 5%, 40%, 50% of your grade respectively. Tests 1 and 2 cover prerequisite knowledge for this course and are to be taken without a calculator/computer. **Please bring a soft #2 pencil and eraser to these test, and know your Student ID number!** You should write your name and Student ID number by "filling in bubbles," not writing letters and digits.

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 write your homework neatly and explain it clearly as if it were a test or exam. It is impossible to do mathematics without careful attention to detail. The tests and exam will be based on key ideas in the lectures, and on homework problems.

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. The best way to determine how well you are performing is via your *relative position* in the class. I shall rank students by score, so you can determine your relative position exactly.

A brief description of the course content is: sine and cosine of an angle (and related trigonometric functions), connection with right-angled triangles, the law of sines and the law of cosines, inverse sine and cosine functions etc, graphing and understanding rational functions, vectors and computing projections using dot products. The "course outcome" or "student learning objective" is that passing students have a reasonable mastery of these subjects, and can solve problems theoretically, and when relevant, with the aid of a graphical calculator.

Tuesday (in general) will be a **problem solving day**. Bring your answers and of course the photocopied questions and brief solutions.

I have collected useful URL's on my home page. To learn trigonometry see `http://aleph0.clarku.edu/~djoyce/java/trig/`. Solving equations graphically using the *function calculator* at `http://wims.unice.fr/wims/wims.cgi` is simpler and more accurate than hand-held calculators. In addition, it has an *inverse symbolic calculator*, that can convert decimal numbers to symbolic equivalents e.g. 2.09439510 is converted to $2\pi/3$.