Analytic Geometry and Calculus III (MATH 282)

Autumn Quarter, 2009

Time/Place:	MTWF 8:00-8:50 a.m. KRH 347
Instructor:	Jonathan Duncan (jonathan.duncan@wallawalla.edu)
Office:	Kretchmar Hall 330, phone: 527-2097
Office Hours:	10:00 MTWF, 11:00 W, 1:00 MWF, or by appointment
Text:	*Calculus, 9th Edition*, by Larson, Hostetler, and Edwards, Houghton Mifflin, 2006. (ISBN 978-0-547-16702-2)
Webpage:	http://math.wallawalla.edu/courses/282/
Calculator:	A graphing calculator with symbolic math capabilities, such as the TI-89.

In this course we will study sequences, series, polar coordinates, parametric equations, and vectors. We will cover chapters 9-12 in your text, in order. The deadline for withdrawing from the course is **Tuesday, 17 November** and the final will be on **Monday, 14 December 2009**.

Topics

1. Infinite Series:

   sequences, series and convergence, the integral test, p-series, comparisons of series, alternating series, the ratio and root test, Taylor polynomials and approximations, power series, representation of functions by power series, Taylor and Maclaurin series
2. Conics, Parametric Equations, and Polar Coordinates:

   conics and calculus, plane curves, parametric equations, calculus with parametric equations, polar coordinates and graphs, polar area and arc length, polar equations of conics, Kepler's laws, rotations
3. Vectors and the Geometry of Space:

   vectors in the plane, space coordinates, vectors in space, dot products, cross products, lines and planes in space, surfaces in space, cylindrical and spherical coordinates
4. Vector-Valued Functions:

   vector-valued functions, differentiation and integration of vector-valued functions, velocity and acceleration, tangent vectors, normal vectors, arc length, curvature

Objectives

Upon completion of this course, students will have

1. developed demonstrable understanding of the topics outlined above.
2. successfully engaged in mathematical thinking, reasoning, and problem solving.
3. become proficient in expressing clear and accurate solutions to mathematical problems in written form.

The following requirements encourage and measure the successful completion of these objectives.

WeBWorK Assignments (O2)

Mathematics is not a spectator sport. Daily WeBWorK assignments will be given, each due by midnight on the day of the next class period. These assignments, together with the solution write-ups mentioned below, should be considered the minimal amount of homework required to pass the course, and can be expected to take approximate two hours for every hour of lecture. Assignments which are more than one class day late will not be accepted. Your lowest two WeBWorK homework scores will be dropped at the end of the quarter. If you miss more than two assignments due to **appropriate and verifiable** reasons, additional homework scores may, at the discretion of your instructor, be dropped.

Solution Write-Ups (O3)

In addition to your daily WeBWorK, you will complete weekly assignments focusing on solution write-up. These assignments are due by 5:00 p.m. on the Monday following the week in which they are assigned. No solution write-up assignments will be dropped. Please contact your instructor well ahead of time if you believe illness or other unavoidable circumstances will necessitate turning in a late solution write-up.

WeBWorK can check your answers, but not your solutions. A solution is a guide to understanding why your answer is correct. When writing up solutions, it is not enough to supply a number or a formula. **You must show your work**! Your write-up must communicate how you arrived at your answer. To help facilitate this communication, include short sentences along the way explaining what you are doing to solve the problem. These sentences provide a framework within which the reader can better understand your mathematics. Finally, presentation is an important part of any solution. You are trying to "sell" your work to the reader. Therefore your write-ups should be well organized and legible, flow nicely, and be a joy to read!

When turning in solution write-up assignments, please write in pencil on 8.5 × 11 paper with clean edges. Staple multiple pages together and then fold the papers lengthwise, like a book. Write your name, the course number, and the week number on the front cover. Papers which do not meet these criteria may be discounted or returned.

Exams (O1,O2,O3)

There will be four exams during the course of the quarter, including the two-hour comprehensive final. The first three exam dates are subject to in-class change, and will be announced at least one week in advance. You may request alternative exam dates in advance for **appropriate and verifiable** reasons. The final exam may only be taken out of schedule after consultation with the Associate Academic Dean.

Exam I	Chapter 9	19 October
Exam II	Chapters 9 and 10	9 November
Exam III	Chapters 11 and 12	4 December
Final	Chapters 9-12	Monday, 14 December, 10:00 a.m.

Grades

Your final letter grade will be based on your quarter average as shown below. Your quarter average is made up of six scores: your WeBWorK average, write-up average, and four exam scores. Weights for each of these are given below. Appropriate (to your instructor) modifications of the final letter grades may be made in individual cases for progress, unusual circumstances, etc.

Score Weights	
Final	30%
Exams I-III	3×18%
WeBWorK	10%
Write-Ups	6%

Letter Grades (lowest percent)

		B+	89%	C+	78%	D+	64%		
A	93%	B	82%	C	68%	D	57%	F	0%
A-	91%	B-	80%	C-	66%	D-	55%		

All acts of dishonesty are unacceptable, including cheating, plagiarism, forgery, misrepresentation, falsification, and prohibited collaboration. Violation of academic integrity codes will result in disciplinary action. Collaboration on homework is encouraged, but be certain that the work you hand in is your own.

Disabilities

Students with a physical and/or learning disability who require accommodations should contact the instructor or Disability Support Services at 527-2366. This syllabus is available in alternative formats upon request.