

Information Sheet for Final Exam Math 116, Spring 2002

Time: Monday, May 13, 2002, 10:30 AM –12:30 PM.

Location:	Section	1	Prof. Giné	CLAS 108
		2	Dr. Sozen	CLAS 108
		3	Prof. Haas	CLAS 108
		4	Prof. Hurley	CHM A-203
		5	Dr. Grantcharov	CLAS 108
		6	Prof. DeFranco	CLAS 108
		7	Prof. Madych	CHM A-2032
		8	Prof. Leibowitz	HEW 280 (Pharmacy)
		9	Prof. del Barrio	MONT 101

The exam will cover the following material: Text Sections 6.2, 7.1, 7.2–7.4 or 7.2*–7.4* (study the sections that your instructor covered), 7.5, 7.7, 8.1, 8.2, 8.4, 8.8, 10.4, 11.1, 11.2, 11.4, 12.1–12.10, 13.1–13.5. For guidance about the material that was on the midterm exams, refer to the information sheets/review materials for those exams, as well as the exams themselves. Approximately 80% of the Final Exam will consist of topics from Exams 1 and 2. Some suggestions about sections since Exam 2:

9.1, 11.3 Arc length will *not* appear on the exam.

11.4. Know how to transform equations in polar coordinates to Cartesian (rectangular)-coordinate equations and vice versa, and be able to recognize and describe specific types of curves (such as cardioids, limaçons, roses, circles, spirals).

13.1 Know how to compute distances between points in \mathbf{R}^3 and how to produce and work with equations of spheres.

13.2 Know how to calculate basic arithmetic operations on vectors, lengths, and how to find a unit vector in the direction of a given vector \mathbf{v} .

13.3 Know how to calculate dot products, angles between nonzero vectors, and projection of one vector onto another.

13.4 Know how to calculate cross products, and how to use such calculations to find the area of a parallelogram determined by two vectors \mathbf{v} and \mathbf{w} as well as the equation of a plane through three points P, Q, R .

13.5 Know how to find vector parametric and scalar parametric equations of a line through (a) two points P and Q , or (b) through a point P in the direction of a vector \mathbf{v} . Be able to find the equation of a plane through a given point P_0 perpendicular to a vector \mathbf{n} , or the equation of a plane through a point P that is parallel to a plane with equation

$$(*) \quad ax + by + cz = d.$$

Know how to translate back and forth between vector equations of the form $\mathbf{n} \cdot \langle x - x_0, y - y_0, z - z_0 \rangle = 0$ and scalar equations (*).

Some Suggested Review Problems: Exam 1 and 2 questions, as well as most suggested syllabus homework problems make good practice problems. Here are some additional ones.

- p. 722: 3, 13
- p. 867: True-False: 1, 3, 5, 13
- pp. 867–868 Exercises: 1, 3, 5, 11, 15, 17, 19, 20, 25

Bring to the exam those items you think you may need during the exam. You may use *only* a scientific calculator (such as a TI-30), not a graphing calculator (any TI-80 series). You may not use any notes. Since your book cannot be used, avoid draining your energy: don't carry it to the exam.

Unlike the midterm exams, the Final will *not* provide trigonometric formulas. The only ones you need to know are $\sin^2 \theta + \cos^2 \theta = 1$ and $1 + \tan^2 x = \sec^2 x$.

To complete your preparation for the final exam, try the posted 1999 and 2000 final exams. (Bear in mind that some topics — such as arc length, integration by inverse-trigonometric substitution — that will not appear on this year's exam may occur on either of those older ones. If you encounter such a problem, don't bother working it.)

What if you miss the final exam? Only the Dean of Students can excuse an absence from the Final Exam. The Department of Mathematics gives make-ups for missed finals *only in mid-September*. Since students who take make-up finals have four extra months of study time, make-up finals are usually considerably more challenging than the May final exams. The grades on the make-up exams have tended to be lower than those on the May final exams. If you have stacked finals, it is therefore almost always advantageous to seek an alternate administration of a final exam *other* than the Math 116 final.