Math 3B, Fall 2004

Calculus with Applications II

Tuesday & Thursday, 9:30-10:45am, NH 1006

Instructor: Carlos J. García-Cervera.

Office: South Hall, 6707.
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URL: `http://www.math.ucsb.edu/~cgarcia/Courses/Math3B`
Office Hours: Tuesday and Thursday 11:00am-12:30pm.

Teaching Assistants and Sections					
3B, 01, 01	28258	Ricardo Garza	Tuesday	8:00-8:50am	GIRV 2116
3B, 01, 02	28266	Ricardo Garza	Tuesday	4:00-4:50pm	TRAIL 940
3B, 01, 03	28274	Jarrod L. Pickens	Tuesday	5:00-5:50pm	GIRV 2129
3B, 01, 04	28282	Jarrod L. Pickens	Tuesday	6:00-6:50pm	GIRV 2108
3B, 01, 05	28290	Jarrod L. Pickens	Tuesday	7:00-7:50pm	GIRV 1115

Math Lab: Monday-Friday, 12-5pm, South Hall 1607, TAs will be available to assist you.

Textbook: *Single Variable Calculus, Early Transcendentals*, by Stewart, 5th edition.

Course description: This is the second part in the introduction to Single Variable Calculus. In this course we will cover Integration and parametric curves.

Prerequisites: Math 3A.

Assignments and grading: Homework will be assigned on Thursdays, and will be due on the next Thursday. This quarter we are going to be using *WebWork* (`http://webwork.math.ucsb.edu`) to do the homework. You should have received an email from me with your password for *WebWork*. If you have not received such an email, please come see me during office hours. Please, learn how to use it **as soon as possible**. In addition to *WebWork*, there will be one or two handwritten assignments which you will have to hand in during class.

There will be a **midterm** on **Thursday October 28th, 2004**, and the **final exam** will be on **Tuesday December 7th, 2004**, from 7:30-10:30pm. Your final grade for the course will be best of the two following schemes:

Scheme I: Final Grade = 20% Homework + 30% Midterm + 50% Final.

Scheme II: Final Grade = 20% Homework + 0% Midterm + 80% Final.

Discussion Sessions: Attending the discussion sessions in required, and a quiz will be given almost every week by the Teaching Assistant.

Syllabus: During this course we will try to follow the following schedule. However, much like everything said earlier, this is subject to change.

Week 1: Integrals (I).

§4.10 Antiderivatives.

§5.1 Areas and Distances.

§5.2 The Definite Integral.

Week 2: Integrals (II).

§5.3 The Fundamental Theorem of Calculus.

§5.4 Indefinite Integrals and the Net Change Theorem.

§5.5 The Substitution Rule.

Week 3: Applications of Integration (I).

§6.1 Areas Between Curves.

§6.2 Volumes.

§6.3 Volumes by Cylindrical Shells.

Week 4: Applications of Integration (II).

Midterm

§6.4 Work.

§6.5 Average Value of a Function.

§7.1 Integration by Parts.

Week 5: Midterm & Techniques of Integration (I).

Midterm

§7.2 Trigonometric Integrals.

§7.3 Trigonometric Substitutions.

Week 6: Techniques of Integration (II).

§7.4 Integration of Rational Functions by Partial Fractions.

§7.5 Strategy for Integration.

Week 7: Techniques of Integration (III).

§7.7 Approximate Integration.

§7.8 Improper Integrals.

§8.1 Arc Length.

Week 8: Further Applications of Integration.

§8.2 Area of a Surface of Revolution.

§8.3 Applications to Physics and Engineering.

Week 9: Parametric Equations and Polar Coordinates.

§10.1 Curves Defined by Parametric Equations.

§10.2 Calculus with Parametric Curves.

§10.4 Areas and Lengths in Polar Coordinates.

Week 10: Review.

§10.5 Conic Sections.

Review

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*If time permits.