

# Advanced Placement Calculus

MA 17, Fall 2004

Section 5

TTh 9:00–10:20am

B&H 157

**Instructor:** Alina Bucur,

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**Office hours:** Tu 11am-12pm and 3-4pm, W 4-5pm and by appointment.

**Text:** Stewart, *Calculus. Early Transcendentals Single Variable*, fifth edition.

**Course material on the web:** You will be able to find the syllabus, handouts, homework assignments, announcements, etc. on the course webpage at

<http://www.math.brown.edu/~alina/ma17>

**Homework:** Homework will be assigned in class on Tuesdays, and should be turned in the following Thursday in class. Do not leave homework to the last minute; it can take a while.

Note that you are not done with a problem just because you got the right answer. You are only done when you understand **why** the methods you used had to have worked. If all you are doing is blindly applying formulas and mimicking examples, get extra help. The problems should make *sense* to you. You should be able to solve the problem and similar ones with closed book and notes.

**Submitting the homework.** Please prepare your homework according to the following rules:

1. Write your name clearly at the top of every page.
2. Put the problems in order, indicating clearly what you have skipped.
3. **Staple** your homework. Paper clips, folded corners, etc. are not acceptable.
4. Turn in assignments on time. No late homework will be accepted.
5. Write clearly. If your homework is too messy, a grader may choose not to grade it.

**Exams:** There are no excuses other than incapacitating illness or family emergency for missing an exam. In such cases you should contact the course coordinator to arrange an **oral** make-up exam.

**Calculators:** No calculators are allowed on exams.

**Resources:** If you don't understand something, there are plenty of ways to go: questions are welcome in class. For a longer conversation, I have regular office hours. It may be possible to make an appointment for another time if you need to; email me and we'll see what we

can do. The Math Resource Center, staffed by math grad students and offering help in all calculus courses, is open Monday through Thursday 8:00–10:00pm.

**Some important advice:** Come to every class. Work at a steady pace throughout the semester. Think of it as giving your brain regular exercise. You won't learn the subject or do well in the course, if you try to do it by last-minute cramming. Of course, there may be times when you are stuck and don't know how to proceed with your work. If you are confused about the material, do not avoid the issue. It's normal to be temporarily bewildered sometimes while learning mathematics. Seek help!

And remember: office hours are not replacements for missing classes.

## Approximate Outline

### Review on integration:

Sec. 5.5, 7.1–7.5                      Integration techniques

### Differential equations

Sec. 9.1, 9.2                      Differential equations, slope fields  
Sec. 9.3                              Separable differential equations and applications  
Sec. 9.4                              Exponential growth and decay  
Sec. 9.5                              Models of population dynamics  
Sec. 9.6                              First order linear equations and application  
Sec. 9.7                              Predator-Prey system (if time permits)

### Infinite series

Sec. 4.4                              L'Hôpital's rule  
Sec. 7.8                              Improper integrals  
  
Sec. 11.1–11.2,                      Infinite series and convergence  
Sec. 11.3–11.7                      Convergence tests  
Sec. 11.8–11.9                      Power series  
Sec. 11.10–11.12                      Taylor series, Taylor polynomials and applications

### Parametric equations and polar coordinates

Sec. 10.1–10.4                      parametric curves and polar coordinates  
Sec. 10.5–10.6                      Conic sections (If time permits)