Midterm 3 Information

The exam will be held on Monday, November 8, 7:15-8:15 pm.

- The exam is designed to last 1 hour, but you may stay and work until 8:30 pm if you wish to.
- Please arrive by 7:10 at the latest
- Bring your University ID card (I-card).

Location:

**12pm lecture (Professor Ahlgren)**
- BD0, 11am (TA: Alex Duda) - 103 Mumford Hall
- BD2, 10am (TA: Eunmi Kim) - 103 Mumford Hall
- BD3, 11am (TA: Eunmi Kim) - 103 Mumford Hall
- BD7, 1pm (TA: Alex Duda) - 103 Mumford Hall
- BD1, 9am (TA: Scott Ahlgren) - 66 Library Building
- BD4, 12pm (TA: Brian Schertz) - 66 Library Building
- BD5, 1pm (TA: Brian Schertz) - 66 Library Building
- BD8, 3pm (TA: Vyron Vellis) - 66 Library Building
- BD9, 12pm (TA: MTip Phaovibal) - 66 Library Building
- BD6, 3pm (TA: Jan Vervoost) - 180 Bevier Hall

**1pm lecture (Professor Laugesen)**
- CD1, 8am (TA: Alok Tiwari) - 151 Everitt Lab
- CD2, 10am (TA: Alok Tiwari) - 151 Everitt Lab
- CD3, 11am (TA: MTip Phaovibal) - 151 Everitt Lab
- CD4, 2pm (TA: Christopher Stocker) - 151 Everitt Lab
- CD5, 1pm (TA: Sujana Chandrasekar) - 180 Bevier Hall
- CD6, 2pm (TA: Jan Vervoost) - 180 Bevier Hall
- CD7, 3pm (TA: Sujana Chandrasekar) - 180 Bevier Hall

Basic information

- The exam covers material from Lecture 20 (Integration by parts, section 7.1 of the text) through Lecture 31 (Integral test, section 11.3 of the text) on the Schedule.
- Of course, you still need to know the basic material from the earlier part of the course.
- You are responsible for all topics covered in homework, lectures, and discussion section worksheets.
- You are responsible for all topics in the text which have been mentioned in class.
- See the schedule of topics covered, along with links to worksheets, announcements and so on, at the course web site.
- The lecture on Monday 8 November (the day of the midterm) will be dedicated to review.
- The section meeting is canceled on Tuesday 9 November. The tutoring room is canceled on Tuesday 9 November and Wednesday 10 November.
- No notes, calculators or electronic aids of any sort, on the test.
- Any act of academic dishonesty (e.g. looking at another student's paper) will be dealt with under the student code of conduct.

Studying

Here is a list of major topics which have been covered:

1. Integration by parts
2. Trig integrals
3. Trig substitutions
4. Integration by partial fractions
5. Improper integrals (type I and type II)
6. Comparison theorem for improper integrals
7. Arclength. Understand how to work with the arclength differential ds.
8. Surface area of revolution. Understand how to work with the arclength differential ds.
9. Moments
10. Center of mass (centroid), and the symmetry principle
11. Theorem of Pappus for volumes of revolution
12. Theorem of Pappus for surfaces of revolution
13. Hydrostatic force
14. Area moment of inertia (Worksheet 18)
15. Sequences
16. Series, geometric series
17. Test for Divergence
18. Integral test for series, estimation of series
19. p-series

- In problems involving moments, hydrostatic force, area moment of inertia, moments, be sure to set up a fixed coordinate system, and to stick to the coordinates you have chosen.
- In some questions, you will be asked to set up integrals without actually evaluating them.
- In others, you will be required to evaluate the definite integrals which arise.

- Be aware of material which was stressed in the lectures.
- Be sure that you understand the worksheet problems.
- Be sure that you understand all of the assigned homework problems and suggested practice problems.
- Get help from your TA or your professor.

Then do new problems.
For the written and online homework problems, you can do nearby problems from the textbook. The chapter review sections are another good source.
Check your answers to odd-numbered problems in the back of the book, or in your Student Solution Manual.
Be strict with yourself about whether you got a correct answer, and whether you knew what you were doing.

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**Tutoring room.**

- The Tutoring Room is in 345 Altgeld, 5-7pm Mon-Thu.
- On the day of the midterm, the Tutoring Room will hold an extra session in a different location: 3-5pm in 152/154 Henry Administration Building. At 5pm the Tutoring Room moves back to 345 Altgeld. Then it closes at 6pm, on the day of the midterm.

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**Practice exam problems**

- Review problems handed out in sections on Tuesday, 11/2 and solutions.
- It is important to do many other problems in addition to these.
- Here are a large number of good additional practice problems from the chapter review sections which you can do as necessary.
  1. Chapter 7 review (Page 518): Concept checks 1-4, exercises 1-50 odd, 61, 71
  2. Chapter 8 review (Page 562): Concept checks 1-5, exercises 1-4,7-16
  3. §11.1: problems 17-46, 60-66
  4. §11.2: problems 11-52, 66-69
  5. §11.3: problems 3-39
  6. Practice on arclength: For each of the problems 3,6,7,13 in §8.1, set up but do not evaluate both an integral with respect to x and an integral with respect to y.
  7. Practice on surface area: For each of the problems 1ab,3ab,5,7 in §8.2, set up but do not evaluate both an integral with respect to x and an integral with respect to y.
  8. Problems on hydrostatic force: §8.3: 3-15
  10. Problems on area moment of inertia: see worksheet 18, review problems on worksheet 19.