ILLINOIS INSTITUTE OF TECHNOLOGY
FALL 2009
MATH 152 - 004
CALCULUS II

INSTRUCTOR       Dr. David J. Maslanka
LECTURES         M W F at 10:00 – 11:15 AM, Room 152 Life Sciences.
MAPLE LABS/
RECITATION       Thursday at 10:00 – 11:15 AM, Room 112E Stuart Building.
OFFICE HOURS     Monday, Wednesday, and Friday from:
                 12:30 – 1:30PM, and from 3:30 – 5:00PM,
or by appointment, Room 234D Engineering 1.
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TOPIC                                      CHAPTER.SECTION

Inverse functions & their derivatives;
Exponential & logarithmic functions;
Indeterminate forms & L'Hospital’s rule. . . . . . . . . . . . . . . . . . . . . . . . . . . 7.1, 7.2*-7.4*, 7.5, 7.8

Techniques of integration;
Improper integrals . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 8.1 – 8.4, 8.8

Differential equations: Euler’s method;
1st order separable DE’s, Exponential growth & decay; The logistic equation;
1st order linear DE’s . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 7.5, 10.1 – 10.6

Parametric equations and polar coordinates
for plane curves . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 11.1 – 11.4

Sequences; Numerical series; Convergence tests
Power series; Taylor series;
Applications of power/Taylor series . . . . . . . . . . . . . . . . . . . . . . . . . . . 12.1 - 12.6, 12.8-12.11

Complex numbers . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . Appendix G
**COURSE OBJECTIVES**

The successful student will:

- Acquire a sound understanding of the common transcendental functions.
- Become proficient in the basic techniques of integration for the evaluation of definite, indefinite, and improper integrals.
- Learn to solve first-order separable and linear differential equations with initial values.
- Learn about parametric curves, polar curves and their calculus.
- Understand the concepts of infinite series, power series, Taylor polynomials and Taylor series, and their convergence properties.
- Utilize the computer algebra system Maple to explore mathematical concepts, illustrate them graphically, and solve problems numerically or symbolically.
- Become a more effective communicator by practicing his/her technical writing and public speaking skills through the preparation of several Maple lab reports and the delivery of oral presentations during recitation.

**COURSEWORK**

- **Homework**
  Homework problems will be assigned regularly and collected on a weekly basis. Each assignment should be submitted complete and on time in order to receive full consideration. Assignments submitted more than one week late will receive no credit.

- **Maple Laboratory**
  There will be approximately five Maple lab assignments this semester. A hard copy of each report must be submitted complete and on time in order to receive full consideration. Reports delivered more than one week late will receive no credit.

- **Recitation**
  Students will be provided with a set of review problems prior to each recitation session. All students should carefully review these problems and be prepared to solve those problems specifically assigned to them at the board during the session. Individual recitation grades will be based on the accuracy of the solutions presented and the quality of the student’s written and verbal communication skills.

- **Exams**
  There will be three midterm exams and a mandatory final examination. The two-hour long cumulative final exam will emphasize the previously untested topics discussed during the final quarter of the semester. It will be administered during the final exam week: December 8 – 14 according to the Registrar’s schedule. Check the web page [http://www.iit.edu/registrar/important_dates/](http://www.iit.edu/registrar/important_dates/) for details.
### EVALUATION

<table>
<thead>
<tr>
<th>Activity</th>
<th>Percentage</th>
<th>Grade Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Homework</td>
<td>10%</td>
<td>A: 85 - 100</td>
</tr>
<tr>
<td>Maple labs</td>
<td>8%</td>
<td>B: 74 - 84</td>
</tr>
<tr>
<td>Recitations</td>
<td>4%</td>
<td>C: 60 - 73</td>
</tr>
<tr>
<td>Midterm exams</td>
<td>52%</td>
<td>D: 50 - 59</td>
</tr>
<tr>
<td>Final Exam</td>
<td>26%</td>
<td>E: 0 - 49</td>
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</tbody>
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### GRADE SCALE

A: 85 - 100  
B: 74 - 84   
C: 60 - 73   
D: 50 - 59   
E: 0 - 49

### NOTES

- Attendance will be taken at every lecture, laboratory, and recitation session this semester. Students are required to attend all sessions and to arrive for class on time. The final course grade of a frequently absent student may be lowered for “nonparticipation” at the discretion of the instructor. Regular class participation may have a positive influence on the final grade of a "borderline" student.

- Illinois Institute of Technology expects students to maintain high standards of academic integrity. Students preparing for the practice of a profession are expected to conform to a code of integrity and ethical standards commensurate with the high expectations that society places upon the practitioners of a learned profession. Therefore, incidents of cheating, plagiarism, or interference with the work of others during an examination will not be tolerated. Such acts of academic dishonesty will be reported to the Dean of Students and may be grounds for immediate dismissal from the class with a grade of **E**.

- During all course lectures, examinations, and recitations, students are prohibited from playing personal music/video devices. This prohibition extends to, but is not limited to, all iPods, MP3 players, CD players and notebook computers.