MAT 322: ANALYSIS IN SEVERAL DIMENSIONS

1. ABOUT THIS COURSE

The fundamental Theorem of Calculus, the Gauss Divergence Theorem and the Stokes Theorem can be understood as one and the same phenomenon. The most general statement is also called the Stokes Theorem. The aim of this course is to explain this theorem. That sounds simple. However, it involves a couple of notions which go beyond the regular calculus courses: implicit function theorem, manifolds, differential forms. We will need some time to develop a proper intuition for these notions. But then the Stokes Theorem comes almost for free.

2. TEXT

*Analysis on Manifolds*, by James R. Munkres

*Remark 2.1*. Although we will not directly use *Calculus on Manifolds* by Michael Spivak, have a look at it. It’s similar to the book we will be using. It’s quit dense but it is also an efficient exposition.

*Remark 2.2*. Generally speaking, you should avoid the Campus Bookstore: often you will find what you need for substantial lower prices elsewhere.

3. HOMEWORK

Each week there will be homework questions assigned. They will be collected the next Tuesday.

4. EXAMINATIONS AND GRADING

There will be two Midterm held during class, and a final exam. The dates and times are listed below; the locations will be announced later. Success on the exams will require correct and efficient solutions to the more difficult of the homework problems.

<table>
<thead>
<tr>
<th>What</th>
<th>When</th>
<th>% of Final Grade</th>
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</thead>
<tbody>
<tr>
<td>Midterm 1</td>
<td>TBA</td>
<td>25%</td>
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<tr>
<td>Midterm 2</td>
<td>TBA</td>
<td>25%</td>
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<tr>
<td>Final Exam</td>
<td>Tuesday, May 21</td>
<td>35%</td>
</tr>
<tr>
<td>Homework</td>
<td>weekly</td>
<td>15%</td>
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Make sure that you can attend the exams at the scheduled times; **make-ups will not be given.** Resolve any conflicts now. If one midterm exam is missed because of a serious (documented) illness or emergency, the semester grade will be determined based on the balance of the work in the course.

5. **Office Hours**

The office hours are listed on the *Office Hours* section on the mat 322 webpage

http://www.math.sunysb.edu/ marco/Marco Martens_files/MAT 322/mat 322.html

You can also make appointments at other times.

6. **Disabilities**

If you have a physical, psychological, medical, or learning disability that may impact your course work, please contact Disability Support Services at

http://studentaffairs.stonybrook.edu/dss/

or (631) 632-6748. They will determine with you what accommodations are necessary and appropriate. All information and documentation is confidential.

Students who require assistance during emergency evacuation are encouraged to discuss their needs with their professors and Disability Support Services. For procedures and information go to the following website:

http://www.stonybrook.edu/ehs/fire/disabilities.shtml

7. **Academic Integrity**

Each student must pursue his or her academic goals honestly and be personally accountable for all submitted work. Representing another person’s work as your own is **always** wrong. Faculty are required to report any suspected instances of academic dishonesty to the Academic Judiciary. For more comprehensive information on academic integrity, including categories of academic dishonesty, please refer to the academic judiciary website at

http://www.stonybrook.edu/uaa/academicjudiciary/
8. Critical Incident Management

Stony Brook University expects students to respect the rights, privileges, and property of other people. Faculty are required to report to the Office of Judicial Affairs any disruptive behavior that interrupts their ability to teach, compromises the safety of the learning environment, or inhibits students’ ability to learn.