SYLLABUS FOR MATH 550, SECTION 001 VECTOR ANALYSIS

Instructor. Daniel Dix, 777-7525, dix@math.sc.edu

Office Hours. MWF 9:40-10:40 am. Please feel free to contact me about making an appointment if these office hours do not work for you.

Class Time and Room. MWF 10:50-11:40, WMMB Nurs 502


Prerequisites. I will assume you know the material from Math 241.


Chapters of Text Covered. 1, 2, 4, 5, §6.2, 7, 8.

Catalog Description. Vector fields, line and path integrals, orientation and parameterization of lines and surfaces, change of variables and Jacobians, oriented surface integrals, theorems of Green, Gauss, and Stokes; introduction to tensor analysis (not covered).

Learning Outcomes. Students who successfully complete Math 550 will be able to do the following.

2. Compute and interpret partial derivatives and gradients of scalar-valued functions, as well as divergence and curl of vector-valued functions (fields).
3. Compute and interpret integrals of real-valued functions over regions in one, two, and three dimensional space, as well as over curves (with respect to arc length) or surfaces (with respect to surface area), and line integrals of vector fields over oriented parameterized curves, and surface integrals of vector fields over oriented parameterized surfaces.
4. Be able to state, interpret and apply the various generalizations of the fundamental theorem of calculus (e.g. Green, Gauss and Stokes’ Theorem).

Exams. The will be three 50 minute exams held in class (during the usual class time) on the following dates:

1. Monday, Sept. 21 (the drop date is Monday, Oct. 12).
2. Wednesday, Oct. 21.
**Homework.** Homework problems will be assigned regularly. Some sets will be due in class one week after they are assigned. Some problems may be due the next class. Late solutions will not be accepted. These will be graded and returned as soon as possible.

**Final Exam.** A fourth exam (not comprehensive) will be given on Monday Dec. 7, at 12:30 pm in the classroom.

**Grading System.** The various components of the course will be weighted as follows to determine the grade:

1. Homework 20%.
2. 3 Exams 20% each.
3. Final Exam 20%.