MATH 411, ADVANCED CALCULUS II,
Professor Patrick Fitzpatrick
FALL 2016

August 5, 2016

1. Instructor : Patrick Fitzpatrick, Rm. 3127 Math. Bldg. email : pmf@math.umd.edu

2. Office Hours : MWF 9:00 AM-10:00 AM, or by special appointment.


4. Grading Policy : The course grade will be based on:
   a) 100 pts total : Six Homework assignments. The lowest grade will be dropped.
   b) 200 pts total : Three in class Exams. The lowest grade will be dropped.
   c) 200 pts total : The Final exam, which will cover everything taught in class.
                   Total number of points : 500.

5. Hourly Exams: The hourly exams will take place on the following dates:

   SEPT 23          OCT 28          DEC 9

5. Final Exam: The final exam will take place on

   FRIDAY DEC 16, 8.00 am-10.00 am: Room to be announced

6. Homework : There will be Six homework assignments. Each completed homework must have your name and the number of the assignment on every page and must be stapled. The homework due dates are

   HW 1: SEPT 9 —  HW 2: SEPT 30 —  HW 3: OCT 14 ,
7. **General policy**: Missed exams will not be made-up. With a valid excuse you can replace the missed exam with your grade in the final exam. Late homework will be reduced by 50%. **If you cannot make the final exam you have to contact me at least a week in advance to arrange for an alternate examination.**

CLASS ATTENDANCE IS EXPECTED.

8. **Disabilities**: Students requiring special examination conditions will need to register with **DSS**, Disabled Student Services and make testing arrangements with them. Please let me know about arrangements a week ahead of time and provide me with the appropriate forms to sign.

9. **Academic Integrity**: The University of Maryland, College Park has a Code of Academic Integrity, administered by the Student Honor Council. This Code sets standards for academic integrity at Maryland for all undergraduate and graduate students. As a student you are responsible for upholding these standards for this course. It is very important for you to be aware of the consequences of cheating, fabrication, facilitation, and plagiarism. For more information on the Code of Academic Integrity or the Student Honor Council, please visit [http://www.studenthonorcouncil.umd.edu/whatis.html](http://www.studenthonorcouncil.umd.edu/whatis.html)

10. **Counseling**: For counseling contact the **Counseling Center** (301)-314-HELP (4357) Hours: Mo.-Thurs. 2:00pm-2:00am, Friday 2:pm-10:00am, Sat.-Sun. 2:00pm-12:00am.
MATH-411 HOMEWORK PROBLEMS

Chapter 10.
Page 276 No. 2,7,11
Page 281 No. 3,5
Page 288 No. 1,2,6

Chapter 13.
Page 352 No. 4,11.
Page 361 No. 1,7,8,11
Page 370 No. 4,9,10,11.

Chapter 14.
Page 377 No. 2,10,11,17.
Page 386 No. 2,3,9.
Page 392 No. 2,4,11.

Chapter 15.
Page 405 No. 2,9,10.
Page 412 No. 2,5,8.
Page 419 No. 5,9.

Chapter 16.
Page 427 No. 1,3,9,11.
Page 432 No. 2,3.
Page 437 No. 1,5,8.

Chapter 17.
Page 447 No. 2,4,6
Page 453 No. 1,8.
Page 459 No. 3.
Page 468 No. 6,8,13,14.

Chapter 18.
Page 481 No. 11,13.
Page 488 No. 7,8.
Page 496 No. 3.

Chapter 19.
Page 504 No. 3,5.
Chapter 20.
Page 531 No. 2,3,6.
Page 541 No. 5,7,12.
Page 556 No. 2,8,11,16.
10.1 : A brief introduction to vectors in $\mathbb{R}^n$. The scalar product and Cauchy-Schwarz inequality.
10.2 : Convergence of sequences in $\mathbb{R}^n$, open and closed sets. Compact sets.

13.1 : Functions of several variables, continuity and limits.
13.2 : Directional Derivatives and Partial Derivatives.
13.3 : The Mean Value Theorem and Directional Derivatives.


15.1 : Linear Mappings and Matrices. Basic properties of Matrices.
15.2 : The Derivative Matrix and the Differential.
15.3 : Composition of Maps and Chain Rule(s).

16.1 : Functions as Maps.
16.4 : A constructive proof of IFT.

17.1 : The Implicit Function Theorem and its applications.
17.2 : Description of Curves and Surfaces via the Implicit Function Theorem.
17.3 : Constrained Extrema and Lagrange Multipliers.

18.1 : Integration of Functions on Generalized Rectangles (brief).
18.2 : Continuity and Integrability (brief).
18.3 : Integration of Functions on Jordan Domains (brief).
18.4 : Basic Properties of Integrals (brief).

19.1 : Fubini’s Theorem.
19.2 : Change of Variables Formula.
19.3 : Examples and Applications of Fubini and Change of Variables.

20.1 : Arclength and the Line Integrals.
20.2 : Surface Area and Surface Integrals.
20.3 : Green-Stokes and Gauss Theorems.