

# MATH 4318 SYLLABUS

FALL 2010

Course Number: Math 4318 A

Course Name: Analysis II

Lecture Time: MWF 1:05 p.m.–1:55 p.m.

Lecture Room: Skiles 154

Instructor: Dr. Christopher Heil  
Office: Skiles 109  
Office Phone: 404-894-9231  
Email Address: [heil@math.gatech.edu](mailto:heil@math.gatech.edu)

Course Web Page: <http://www.math.gatech.edu/~heil>

Office Hours: MWF 2-3 and by appointment

Contacting me: I encourage you to contact me by email. I try to check email daily and to respond to questions quickly. Please don't be afraid to set up other appointment times if you are having trouble getting in touch with me.

Prerequisites: Math 4317 (Real Analysis I)

Textbook: *The Elements of Real Analysis*, by Robert G. Bartle

Material: Sections 27–45 (approximately) and web notes

**Goals and Philosophy.** This course is a continuation of MATH 4317 (Real Analysis I). The emphasis is on rigorously *proving* facts about real numbers and functions of a real variable. I assume that you have already learned what a proof is and how to write one. I further assume that you know *and remember* the material covered in Real Analysis I.

**Academic Dishonesty.** All students are expected to comply with the Georgia Tech Honor Code. Any evidence of cheating or other violations of the Georgia Tech Honor Code will be submitted directly to the Dean of Students. The institute honor code is available at <http://www.honor.gatech.edu>

**Grading.** We will have 5 homework assignments, two in-class exams, and one final exam.

5 Homeworks	25 points each
Exam I	50 points
Exam II	50 points
<u>Final Exam</u>	<u>100 points</u>
TOTAL	325 points

Letter grades will be based on your accumulated points at the end of the semester, according to standard 90%, 80%, 70%, 60% cutoffs (although I may adjust the cutoffs downward at the end of the semester, depending on class distribution):

292–325	A
260–291	B
227–259	C
195–226	D
0–194	F

At the end of the course, I'll evaluate the class distribution and decide if a curve is needed. I'll only curve *down* from the above cutoffs, not up!

**Homework.** Homeworks will consist of problems selected from the book or problems that I make up. A subset of these will be selected for grading.

Homeworks should be nearly written on the front side of the page only, and must be stapled. LATE HOMEWORKS WILL NOT BE ACCEPTED.

You are allowed (and encouraged) to work together with other students on the homework, as long as you each INDEPENDENTLY WRITE UP YOUR OWN SOLUTIONS. You are also allowed (and encouraged) to ask me questions, although you should try to think about the problems before asking. I strongly encourage you to work extra problems from the book on your own.

**Exams.** The tentative dates for the exams are:

Exam 1	Friday, October 1 (in class)
Exam 2	Wednesday, November 17 (in class)
Final Exam	Wednesday, December 15, 2:50–5:40 p.m.

The exams are closed-book and closed-notes, except that you will be allowed to bring one 8.5x11 sheet of notes (you can write on both sides) to each exam. The final is comprehensive.

Makeup exams are given only in extraordinary circumstances.

## MATH 4318 SYLLABUS

SPRING 2004

Course Number: Math 4318 A

Course Name: Analysis II

Lecture Time: TuTh 12:05 a.m.–1:25 p.m.

Lecture Room: Skiles 256

Instructor: Dr. Christopher Heil

Office: Skiles 260

Office Phone: 404-894-9231

Email Address: [heil@math.gatech.edu](mailto:heil@math.gatech.edu)

Course Web Page: <http://www.math.gatech.edu/~heil>

Office Hours: TuTh 1:35-2:30 p.m., and by appointment

Contacting me: I encourage you to contact me at any time by email. I try to check email evenings and weekends and to respond to questions quickly. Please don't be afraid to set up other appointment times if you are having trouble getting in touch with me.

Prerequisites: Math 4317 (Real Analysis I)

Textbook: *The Elements of Real Analysis*, by Robert G. Bartle

Material: Sections 27–45 (approximately)

**Goals and Philosophy.** This course is a continuation of MATH 4317 (Real Analysis I). The emphasis is on rigorously *proving* facts about real numbers and functions of a real variable. I assume that you have already learned what a proof is and how to write one. I further assume that you know *and remember* the material covered in Real Analysis I.

**Academic Dishonesty.** All students are expected to comply with the Georgia Tech Honor Code. Any evidence of cheating or other violations of the Georgia Tech Honor Code will be submitted directly to the Dean of Students.

**Grading.** We will have 4 homework assignments, three in-class exams, and one final exam.

4 Homeworks	15 points each
3 Exams	30 points each
<u>Final Exam</u>	<u>50 points</u>
TOTAL	200 points

Letter grades will be based on your accumulated points at the end of the semester, according to standard 90%, 80%, 70%, 60% cutoffs (although I may adjust the cutoffs downward at the end of the semester, depending on class distribution):

180–200	A
160–179	B
140–159	C
120–149	D
0–119	F

At the end of the course, I'll evaluate the class distribution and decide if a curve is needed. I'll only curve *down* from the above cutoffs, not up!

**Homework.** Homeworks will consist of problems selected from the book or problems that I make up. A subset of these will be selected for grading.

Homeworks should be nearly written on the front side of the page only, and must be stapled. LATE HOMEWORKS WILL NOT BE ACCEPTED.

You are allowed (and encouraged) to work together with other students on the homework, as long as you each INDEPENDENTLY WRITE UP YOUR OWN SOLUTIONS. You are also allowed (and encouraged) to ask me questions, although you should try to think about the problems before asking. I strongly encourage you to work extra problems from the book on your own.

**Exams.** The tentative dates for the exams are:

Exam 1	Thursday, January 29 (in class)
Exam 2	Thursday, February 19 (in class)
Exam 3	Thursday, March 18 (in class)
Final Exam	Friday, April 30, 8:00–10:50 a.m.

The exams are closed-book and closed-notes, except that you will be allowed to bring one 8.5x11 sheet of notes (you can write on both sides) to each exam. The final is comprehensive.

Makeup exams are given only in extraordinary circumstances.

# Course Syllabus

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**Professor:** Dr. Christine Heitsch**Office:** Skiles 211B**Phone:** (404) 894 - 4758**Email:** heitsch@math.gatech.edu**Webpage:** <http://www.math.gatech.edu/~heitsch>

**Office Hours:** Monday 4:30 – 5:30pm and Tuesday/Thursday 1:30 – 2pm. If you need to meet at another time, send email (including availability) to set up an appointment.

**Lectures:** Tuesday and Thursday from 12:05 – 1:25 in Skiles 255.

**Textbook:** M. Rosenlicht, *Introduction to Analysis*, Dover edition, 1986.

**Course Description:** “Differentiation of functions of one real variable, Riemann-Stieltjes integral, the derivative in  $R^n$  and integration in  $R^n$ .”

**Prerequisites:** Math 4317 (Analysis I) or equivalent.

**Course Topics:** Differentiation (Chapt. 5); Riemann integration (Chapt. 6); Interchange of limit operations (Chapt. 7); Method of successive approximations (Chapt. 8); Partial differentiation (Chapt. 9); Multiple integrals (Chapt. 10).

**Grading Scheme:** Grades will be calculated as the *maximum* of the following three schemes:

	Standard	Alternative 1	Alternative 2
Final Exam	<b>30%</b>	<b>50%</b>	<b>25%</b>
Two Midterm Exams	<b>40%</b> = 20% + 20% (both exams)	<b>20%</b> (best exam)	<b>50%</b> = 25% + 25% (both exams)
Homework	<b>30%</b>	<b>30%</b>	<b>25%</b>

Grades will be assigned on the standard scale:

**A** 90 or higher   **B** 80 – 89   **C** 70 – 79   **D** 60 – 69   **F** Below 60

On an individual basis, significant improvement over the semester will be taken into account. The overall class distribution will also be carefully considered.

**Final Exam:** The final exam is scheduled for Tuesday, May 1st from 11:30 AM - 2:20 PM. The exam will be cumulative.

**Midterm Exams:** There will be two in-class exams. The exams will be closed book, closed notes, no calculator, individual tests. The **tentative** exam dates are:

**Midterm 1** Thursday, February 9th

**Midterm 2** Thursday, March 15th

Exam dates will be confirmed at least a week in advance.

**Homework:** Homework will be assigned most weeks, and due one week later (including “Dead Week”) at the beginning of class. **Late homework will not be accepted.**

A subset of the assigned problems will be selected for grading.

Solutions must meet the formatting requirements below. **Illegible and/or unintelligible solutions will receive no credit.**

1. Be neatly and clearly written in complete, correct sentences.
2. Be written on the front side of the page only.
3. Be stapled together if having multiple pages.

Collaboration is allowed (and even encouraged) when working on homework problems. However, solutions must adhere to the following content guidelines.

1. Be written independently in a student’s own words.
2. Clearly acknowledge any person with whom any part of the assignment was discussed.
3. Properly credit any outside resource consulted in completing the assignment.

**Any solution which violates the content guidelines will receive no credit. Flagrant or repeated violations will be dealt with as a matter of academic integrity.**

**Attendance:** Regular attendance is expected. Exceptions will be accommodated only for valid, documented reasons including (1) official representation of the Institute and (2) medical emergencies. Makeup exams will not be given.

**Exceptions:** Any student who may not be able to meet the requirements of the class as stated must speak with me individually within the first two weeks of class.

**Academic Integrity:** Students are reminded of the obligations and expectations associated with the Georgia Tech *Academic Honor Code* and *Student Code of Conduct*, available online through the Office of Student Integrity (<http://www.osi.gatech.edu/>) and the Honor Advisory Council (<http://www.honor.gatech.edu>).

**Any violations must be reported directly to the Dean of Students.**

**Practice Problems:** Beyond the assigned homework, additional “practice problems” will be suggested. You are strongly encouraged to work these problems (and others!) on your own and/or with other students to master the course material.

**More Information:**

- Grades will be posted on T-Square — <http://t-square.gatech.edu>
- Everything else will be posted on the course website — <http://www.math.gatech.edu/~heitsch/4318-sp12.html>

**Updates:** This syllabus is subject to modification. Any changes will be announced in class and posted on the course website.

# MATH 4318 - Analysis II

TuTh 9:35-10:55am, Room 257, Building: Skiles

**Instructor:** [Plamen Iliev](#)

**Office Hours:** TuTh 13:30-15:00, Skiles 227

**Textbook:** *The Elements of Real Analysis*, by Robert G. Bartle

## [Syllabus](#)

We will cover most of the material in sections 18, 25 through 33 and 39 through 45 from the textbook.

**Grading:** Grades will be based on homework (20%), project (10%), two tests (20%+20%) and final exam (30%).

**Homework:** Homework will be assigned periodically. A proper subset of each assignment will be graded. You may consult with each other on the homework assignments, but you must write up and submit your own work.

## [Suggested problems and Homework](#)

**Project:** There will be one project assignment, which consists of a sequence of exercises directed towards a significant result. You must work independently on the project.

## Reviews:

- [Review 1](#), Tuesday, September 27, 2005
- [Review 2](#), Tuesday, November 15, 2005
- [Review 3](#), Thursday, December 8, 2005

## Exams:

- Test 1: Thursday, September 29, 2005
- Test 2: Thursday, November 17, 2005
- Final, Tuesday, December 13, 2005, 2:50-5:40

## [Online Course/Instructor Opinion Survey](#)

## [Official school calendar](#)

MATH 4318, ANALYSIS II  
COURSE SYLLABUS  
FALL 2009

INSTRUCTOR: ANDRZEJ SWIECH

LECTURES: MWF 1:05-1:55, SKILES 154

OFFICE: SKILES 235B

OFFICE HOURS: MW 11:00-12:00, T 2:00-3:00 PM, and by appointment

PHONE: (404) 894-2705

E-MAIL: swiech@math.gatech.edu

COURSE WEB PAGE: <http://www.math.gatech.edu/~swiech/4317.html>

TEXTBOOK: R. G. Bartle, *The Elements of Real Analysis*, 2nd edition.

MATERIAL TO BE COVERED: The course is the continuation of Analysis I. It covers the following topics:

- (1) Functions of one variable: mean value theorem and its applications, the Riemann Stieltjes integral and its properties, improper integrals.
- (2) Differentiation in  $R^n$ : Jacobians, chain rule, implicit and inverse function theorems, extrema, second derivative tests, Lagrange multipliers.
- (3) Integration in  $R^n$ : mean value theorem, iterated integrals and change of variables, sets of measure zero.

GRADING: There will be two one hour tests (September 30 and November 6) and the final exam. Notes and books will not be allowed during the tests and the final. Part of your grade will also depend on the homework. Each test and the homework will count for 20% of the final grade, and the final exam will count for 40%. Your grade will be based on how well you have mastered the theory and how well you can solve problems. You will not be asked to reproduce proofs. To get an A, respectively B, C, and D, your final score will have to be greater than 85%, respectively 70%, 55%, and 40%. Some of these requirements may be lowered if the overall average score of the class is low (i.e. your grade may get curved up).

Please be aware of the Georgia Tech Honor Code and follow it carefully. In particular please make sure that all the work you submit is your own.