

## MAT 532, Stony Brook University, Fall 2018

**This version (5-17-18) is subject to change. Check for updates throughout semester**

**Lecture times and places:** TuTh 1:00-2:20 Physics 122, Prof. C. Bishop

**Text:** *Real Analysis*, Gerald Folland, 2nd edition, Wiley.

**Class Webpage:** <http://www.math.sunysb.edu/~bishop/classes/math544.F14>

**Tentative Schedule:** The table lists the sections we will cover in each lecture. Revisions may be made during the semester.

WEEK	STARTING	TUESDAY	THURSDAY
1	Aug 27	FIRST CLASS	1.2,1.3
2	Sept 3	1.4	1.5
3	Sept 10	2.1	2.2
4	Sept 17	2.3	2.4
5	Sept 24	2.5	2.6
6	Oct 1	3.1	3.2
7	Oct 8	NO CLASS	review
8	Oct 15	MIDTERM (Chap 1 and 2)	3.3
9	Oct 22	3.4	3.5
10	Oct 29	4.1-4.2	4.3-4.5
12	Nov 5	4.6	4.7
13	Nov 12	5.1	5.2
14	Nov 19		NO CLASS
15	Nov 26	5.3	5.4
16	Dec 3	5.5	review

### Important Dates:

August 29: first day of class

Sept 4: Labor Day, no class

Oct 8, 9: Fall Break, no class

Nov : Thanksgiving break, no class

Dec 7: last class

Dec 20: Thursday, Final exam 11:15-1:45pm

### Contact information and office hours:

Prof. Bishop: Math Tower 4-112, TuTh 9:30-11am, and by appointment, [bishop@math.sunysb.edu](mailto:bishop@math.sunysb.edu)

Grader: Jack Burkart, [Jack.Burkart@stonybrook.edu](mailto:Jack.Burkart@stonybrook.edu)

**Grades:** Homework, a midterm and a final will each count for a third of the grade.

**Homework:** Problems will be assigned from most sections. Homework is generally due at lecture on Tuesdays; see dates below (these will be filled in according to our progress).

The general rule on problem sets, is that problems for whatever sections I cover one week are due the Thursday of the following week. I will try to update the table below each week as we complete the sections.

Section	Topic	Due	Homework problems
1.2	Sigma fields	Sept 5	3,4
1.3	Measures	Sept 5	8,10,12,14
1.4	Outer measures	Sept 13	17,18,19
1.5	Borel measures	Sept 13	30,31,33
2.1	Measurable functions	Sept 20	3,4,7,9
2.2	Integration, positive	Sept 20	13,15,16
2.3	Integration, complex	Sept 27	19,20,21,25
2.4	Modes of convergence	Sept 27	33,36
2.4		Oct 4	39,44
2.5	Product measures	Oct 4	46,47,48,50
2.6	$n$ -dim Lebesgue measure		—
2.7	Polar coordinates		—
3.1	Signed measures	Oct 11	2,3,6
3.2	Radon-Nikodym theorem	Oct 11	9,11,13,17
3.3	Complex measures		—
3.4	Differentiation	Oct 25	22,23,25
3.5	Bounded variation	Nov 1	30,31,37,40
4.6	Arzelà-Ascoli	Nov 8	64,65
4.7	Stone-Weierstrass	Nov 8	68,69,70
5.1	Normed vector spaces	Nov 29	4,8,9,11,12
5.2	Linear functionals	Nov 29	19,22,25
5.3	Baire Category	Dec 6	27,30,32,38,39
5.4	Topological vector spaces	Dec 6	45,47,48
5.5	Hilbert spaces	*	55,56,58,63,66

\* = one of the listed problems from Section 5.5 will be on the final.

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