

## MAT 324, Stony Brook University, Fall 2015

### Times and places:

Lectures: TuTh 10:00-11:20 Library W4530, Prof. C. Bishop

**Text:** *Measure, Integral and Probability* by Marek Capinski and Ekkehard Kopp (Springer-Verlag, Springer Undergraduate Mathematics Series, ISBN 1-85233-781-8). There will be some supplementary handouts.

**Class Webpage:** <http://www.math.sunysb.edu/~bishop/classes/math324.F15>

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

Week	Lecture	Topic	Book Section
1	Tu Aug 25	Real numbers	1.1
1	Th Aug 27	Real numbers	1.1
2	Tu Sept 1	Null sets	2.1
2	Th Sept 3	Outer measure	2.2
3	Tu Sept 8	No Class	
3	Th Sept 10	Lebesgue measure	2.3
4	Tu Sept 15	Properties	2.4
4	Th Sept 17	Borel sets	2.5
5	Tu Sept 22	Measurable functions	3.1-3.3
5	Th Sept 24	Properties	3.4
6	Tu Sept 29	Definition of integral	4.1
6	Th Oct 1	Monotone convergence	4.2
7	Tu Oct 6	Integrable functions	4.3
7	Th Oct 8	Dominated convergence	4.4
8	Tu Oct 13	Riemann integration/Approximation	4.5, 4.6
8	Th Oct 15	Midterm (Chapters 1-4.4)	
9	Tu Oct 20	$L^1$	5.1
9	Th Oct 22	$L^2$	5.2
10	Tu Oct 27	More $L^2$	5.2
10	Th Oct 29	$L^p$ , completeness	5.3
11	Tu Nov 3	Product measure	6.1-6.3
11	Th Nov 5	Fubini's theorem	6.4
12	Tu Nov 10	Raydon-Nikodym theorem	7.2
12	Th Nov 12	Raydon-Nikodym theorem	7.2
13	Tu Nov 17	Lebesgue-Stieltjes measures	7.3
13	Th Nov 19	Absolute continuity, bounded variation	7.3
14	Tu Nov 24	Signed measures, Hahn-Jordan theorem	7.3
14	Th Nov 26	No Class	
15	Tu Dec 1	Borel-Cantelli lemma	8.2
15	Th Dec 3	Strong law of large numbers	8.2

**Important Dates (Fall 2015):**

August 24: first day of class

Aug 30: last day to drop or withdraw without tuition penalty

Sept 7-8 : Labor Day, no class

Sept 4: last day to drop without a W

Oct 2: last day to drop-down or move-up approved MAT classes

Oct 23: last day: for section changes, to P/NC, to withdraw from a course with a W

Nov 25-29: Thanksgiving break, no class

Dec 4: last day of M-F classes

Dec 11: MAT 324 Final Exam, 11:15am-1:45pm, usual room ML W4530

**Grades:** There will be several problem sets, one midterm and a final exam; each component is worth one third of the class grade.

**Homework:** Problem sets will be posted on the class website.

**Contact information and office hours:**

Prof. Bishop: Math 4-112, TuTh 9-10, Th 1-2 and by appointment, [bishop@math.sunysb.edu](mailto:bishop@math.sunysb.edu)

Grader: David Hu, office in MLC, W 2-3pm and F 1-2pm in MLC [David.Hu@stonybrook.edu](mailto:David.Hu@stonybrook.edu)

**DSS notice:** If you have a physical, psychological, medical, or learning disability that may impact your course work, please contact Disability Support Services at (631) 632-6748 or <http://studentaffairs.stonybrook.edu/dss/>. 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.sunysb.edu/>

**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. Faculty in the Health Sciences Center (School of Health Technology and Management, Nursing, Social Welfare, Dental Medicine) and School of Medicine are required to follow their school-specific procedures. 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/>

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