

## COURSE INFORMATION

### MATH 217 – Honors Advanced Calculus I – Fall 2011

<b>TIME</b>	MWF 10:00 – 10:50 am, R 5:00 – 5:50 pm
<b>LOCATION</b>	CAB 269 (Central Academic Building)
<b>INSTRUCTOR</b>	Arno BERGER
<b>OFFICE</b>	CAB 683
<b>EMAIL</b>	aberger@math.ualberta.ca
<b>OFFICE HOURS</b>	MWF 2:30 – 4:00 pm or by appointment
<b>WEBSITE</b>	<a href="http://www.math.ualberta.ca/~aberger/courses/math217_11/math217_11.html">www.math.ualberta.ca/~aberger/courses/math217_11/math217_11.html</a> Please make a habit of visiting this site regularly.
<b>COURSE NOTES</b>	No set textbook will be used, and you should be prepared to take careful notes in class. However, the course will roughly follow notes from a previous version of MATH 217 which have kindly been provided by Dr. V. Runde and are available in electronic form on the course website.
<b>SYLLABUS</b>	<p>Approximately Chapters 1–4 and 6 (partly) of Dr. Runde’s notes. A more specific outline of the topics covered is as follows:</p> <p><b>A brief review of basic concepts.</b></p> <p><b>The real line.</b> Basic algebraic, order, and topological properties of the real number system.</p> <p><b>The geometry and topology of <math>\mathbb{R}^d</math>.</b> Dot product and length; limits and continuity; some basic topology.</p> <p><b>Differentiation in <math>\mathbb{R}^d</math>.</b> Differentiability and directional derivatives; Taylor’s theorem; stationary points and extrema – with and without constraints.</p> <p><b>Integration in <math>\mathbb{R}^d</math>.</b> Jordan content and Riemann integral; Fubini’s theorem; the transformation formula; integration in polar, cylindrical, and spherical coordinates.</p> <p><b>A preview of vector calculus.</b></p>
<b>HOMEWORK</b>	Homework assignments will be posted weekly on the course website. Your worked-out solutions are due by 5:00 pm on Wednesday (beginning September 21) and must be deposited into the designated MATH 217 assignment box on the third floor in CAB. Collaboration on homework problems is acceptable. However, to receive credit you have to submit your own working. Your submission will be graded and returned to you as soon as possible.

**TEST & EXAM**

Midterm test: **Thursday, October 27, in class.**

Final exam: **Monday, December 19, at 9:00 am, location TBD.**

Details for both events will be given in class. No textbooks, course notes, calculators and formula sheets will be permitted during examinations.

**GRADING:**

Homework	30%
Midterm test	30%
Final exam	40%

**FURTHER****READING:**

Also available electronically on the course website are older MATH 217-317 notes by Dr. J. Muldowney which contain a large number of practice problems.

The following textbooks, available at the UofA libraries, are good sources for further background reading:

RG Bartle, DR Sherbert, *Introduction to Real Analysis*, Wiley, 2011 (4<sup>th</sup> ed).

CH Edwards, *Advanced Calculus of Several Variables*, Academic Press, 1973.

S Lang, *Undergraduate Analysis*, Springer, 1997 (2<sup>nd</sup> ed).

MH Protter, CB Morrey, *A First Course in Real Analysis*, Springer, 1991 (2<sup>nd</sup> ed).

**IMPORTANT:**

**MATH 217 is a serious mathematics course, challenging yet rewarding. Do take it seriously: Take careful notes in class. Make a true effort on every homework problem, even if you cannot solve it completely. Regard asking questions as an important part of your learning experience – don't be shy to ask your colleagues or instructor.**

**DEFERRED****EXAM POLICY:**

If you miss the **midterm test** for a valid reason (see Section 23.3(1) of the Calendar), the weight of the midterm will be transferred to the final. There will be no deferred midterm.

If you miss the **final exam** and your formal excuse is approved (in writing) by the University, you may write a **Deferred Exam** on **Saturday, January 14, 2012, at 9:00 am in CAB 528**. In addition to the requirements set out in Section 23.5.5 of the Calendar, if you wish to be considered for re-examination, you must have completed at least half of the term work (i.e. excluding the final). Term performance will be considered in the decision to grant a re-examination.

**ACADEMIC****INTEGRITY:**

You are reminded of the official U of A statement concerning academic integrity:

*"The University of Alberta is committed to the highest standards of academic integrity and honesty. Students are expected to be familiar with these standards regarding academic honesty and to uphold the policies of the University in this respect. Students are particularly urged to familiarize themselves with the provisions of the Code of Student Behaviour ([www.governance.ualberta.ca](http://www.governance.ualberta.ca)) and avoid any behaviour which could potentially result in suspicions of cheating, plagiarism, misrepresentation of facts and/or participation in an offence. Academic dishonesty is a serious offence and can result in suspension or expulsion from the University."*