MA633 Partial Differential Equations II  
Spring 2012

Instructor: P. D. Hislop  
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Class Meetings: MWF 10:00–10:50 AM CB 345

Office Hours: MWF 4-5, and by appointment

COURSE MATERIAL AND INFORMATION  www.ms.uky.edu/~hislop

**Grading Policy**

We will have one midterm exam in class (100 points), one final (100 points), and occasional homework (100 points) giving 300 points total. Homework will be posted on the course web page: http://www.ms.uky.edu/~hislop/ and you will have at least 10 days for each assignment. We will cover chapter 5, Sobolev Spaces, mostly sections 5.1–5.7, and chapter 6, Second-order elliptic equations.

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<thead>
<tr>
<th>Item</th>
<th>Date</th>
<th>Total Points</th>
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<tbody>
<tr>
<td>Homework</td>
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<td>100 points</td>
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<tr>
<td>Mid-term Exam (approximately 9 March)</td>
<td>in class</td>
<td>100 points</td>
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<tr>
<td>Final Exam: 30 April 1:00-3:00 PM</td>
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<tr>
<td>TOTAL</td>
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<td>300</td>
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The minimum cut-offs for letter grades are: A 270-300; B 240-269; C less than 240. If your final total of all scores is within one of these intervals you are guaranteed to receive the corresponding letter grade or higher.

**Course Content**

This course is a continuation of MA 533. We will study local Sobolev spaces, global Sobolev spaces via the fourier transform, and Sobolev embedding theorems. We’ll do various inequalities such as the Poincaré inequality and the We will then apply this material to study the existence of weak solutions to elliptic PDEs mostly using the Lax-Milgram method. We will study the regularity of these solutions. We will review material from functional analysis as needed. This is summarized in Appendix D.

There are other good books that I recommend:

**Special Dates**

- 16 January  Martin Luther King, Jr. Day - No classes
- 12–16 March  Spring Break - no classes
- 27 April  Last Class