Creighton University Department of Mathematics  
Math 551  
Differential Geometry  
Spring 2010

Instructor  
Dr. Lance Nielsen  
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Office Hours: MWF - 9:30am - 11:00am and 3:45pm - 5:00pm; Tuesday: 10:00am - 12:00pm. (Note: Thursdays I am at UNL most of the day.)

Course Requirements: Math 347


Course Topics:

1. The Geometry of Curves - Chapter 1, Sections 1 - 7.
2. The Geometry and Curvature of Surfaces - Chapter 2, Sections 1 - 5 and Chapter 3, Sections 1 - 5, 7, and 8.
4. Holonomy and the Gauss-Bonnet Theorem - Chapter 6, Sections 1 - 3, 5, 6, and 9.
5. Introduction to Manifolds - Chapter 8, Sections 1 - 5.

Grading: You will be assigned a letter grade based on your performance on regular homework, a take-home mid-term exam and a take-home final exam. The use of the computer algebra system Maple will play an essential role in this class (on the homework and the exams) and the text has a plentiful supply of problems for Maple and Maple code from which to learn.

Mid-term Exam…………………………….100 points  
Homework………………………………….100 points  
Final Exam…………………………………150 points

Attendance: I do not require attendance. If you choose not to attend lecture, you are responsible for the material covered, any work that is due that day or any work that is assigned that day.

If class is canceled, a designated person from the department will announce the cancelation of class with as much notice as possible.
Notes:

1. As mentioned, Maple will play a large role in this class and will be used consistently throughout the course. There is no need to be an expert with Maple, however, so don’t worry too much. Also, not every homework assignment will have a Maple problem or problems.

2. The homework will be primarily calculational in nature. However, there will be some proofs from time-to-time though these will usually be quite straightforward. It is expected that the homework will be written clearly and neatly. This is not an algebra or calculus class - simply recording calculations with no explanation of what you are doing is not acceptable. Make an effort to explain to the reader (i.e. me) what you are doing. If I cannot read what you have written, it will not be graded.

3. Late homework will not be accepted under any but the most dire of circumstances! The same is true of the take-home exams. (Especially the exams!)

4. Academic Honesty: CU has a clear policy that defines academic dishonesty and the consequences of academic dishonesty. You can find this online at http://puffin.creighton.edu/ccas/policies/achonesty.html. Be aware of the information on this webpage.

   Any instance of cheating will result in a failing grade for the course.

5. Point Breakdown:

   - 315 - 350 A
   - 297 - 314 B+
   - 280 - 296 B
   - 262 - 279 C+
   - 245 - 261 C
   - 210 - 244 D
   - 0 - 209 F