

# Math 642, Differential Geometry II, Spring 2013

- Course** Math 642 meets MWF 2:10-3:00 in RH 316  
Course web page <http://mathcs.slu.edu/~clair/dg>
- Instructor** Dr. Bryan Clair  
bryan@slu.edu  
Ritter Hall 110, 977-3043
- Office Hours** M 1-2, Tu 10:30-11:30, W 12-1, or by appointment.  
Stop by my office anytime, and if I'm around I can usually help you.
- Textbook** *Manifolds and Differential Geometry*, Jeffrey M. Lee, AMS Graduate Studies in Mathematics, 2009.
- Homework** There will be weekly homework assignments, with flexible due dates.
- Exams** The midterm exam will happen before Spring break, precise date TBA. The final exam is scheduled for Wednesday, May 8, 2:00-3:50
- Grading** This section gives baseline standards for grading - if you meet these standards, you will receive at least the grade described.  
Grading is based on three measures, weighted equally: The homework, the midterm, and the final exam. For homework, you should be thinking about all the problems, attempting most of them, and getting many of them correct. Handing in solutions (correct or otherwise) to 2/3 of the assigned homework would be A work. On each exam, 50% is at least a B, and 75% is an A.
- Honesty** Students are expected to be honest in their academic work, as per the Honesty Policy of the College of Arts & Sciences. Plagiarism, cheating and dishonesty will be reported to the dean and may result in probation, expulsion, or worse.
- Topics** This semester is the second part of a year long course containing both differential topology and differential geometry. Generally, we will cover chapters 7,8,9 and some of 12,13 in Jeff Lee's book. Highlights include:  
Cotangent vectors and differentials.  
Tensor algebra.  
Differential forms and the exterior algebra.  
Integration on manifolds. Stokes' Theorem.  
Riemannian metrics.  
Geodesics and curvature.  
Additional topics may include: Lie Groups. DeRham cohomology. Distributions and the Frobenius Theorem.
- Schedule** Monday, January 21: No class, MLK.  
March 11-16: No class, Spring break.  
Friday, March 29 and Monday, April 1: No class, Easter break.