Comp 260 – Computational Models & Methods  
Spring 2015  
Course Syllabus

Instructor: Brian J. Shelburne (bshelburne@wittenberg.edu)
Office: 329E Science (x7862)
Class Meetings: MWF 9:10 – 10:10 Rm 260 BDK Science
Lab: Tu 9:40 – 11:10 Rm 141 BDK Science (note room change !)
Office Hours see Course Web site

Text  
A First Course in Mathematical Modeling, 5th Ed., by Frank Giordano, et al

Course Goals:

• To Understand the Meaning, Purpose, and Value of Computational Science
• To Understand How to Use Scientific Models
• To Learn How Models are Derived and Underlying Assumptions
• To Understand the Methods Used to Solve Models
• To Understand the Limitations of Both Models and Methods
• To Learn How to Effectively Use the Computer and Software to Solve Models
• To Understand the Importance of Appropriate Visualization Methods
• To Employ Mathematica in Solving Problems and Validating Solutions

Computation and Programming (Prerequisites):

Mathematica will be used for this course to do most of the computations; some Python 3.3 programming might also be used. Both are currently installed on all of the KUSS laboratory computers as well as many others. Currently Wittenberg has a site license Mathematica. If all copies happen to be in use when you invoke Mathematica, a message to that effect will be given. For this course, programming is only the means to an end; neither programming nor mathematics is an end in itself. The only prerequisites for this course are: (1) a general knowledge of Python programming (satisfied by COMP 150) and (2) an understanding of differential and some integral calculus (satisfied by MATH 131 or MATH 201). However, the ability to use a scientific graphing calculator will be assumed in this course.

Grading:

The grade for this course will be based upon lab exercises and assignments, three in-class tests, and a final project. Class attendance and participation are very important and will have a positive effect on your grade.

The points below are approximate, but they should be close to the following:

Laboratory Exercises and Assignments: 300 points possible
Three Exams (at 100 points each): 300 points possible
Final Project: 100 points possible
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Total: 700 points possible

The course letter grade will be determined by the standard >= 90% of 700 points is an A, >= 80% of 700 points is a B, >= 70% of 700 points is a C, >= 60% of 700 points is a D, and < 60% of 700 points is an F.
Labs:

Lab attendance on Tuesday is *de facto* mandatory and unless other arrangements have been previously made, all laboratory exercises must be done at the assigned time and results turned in. During labs collaboration with other students in our class is permitted. If you receive assistance from a classmate, be sure that you then understand how to do it yourself and can explain *ALL* of it.

Assignments

Assignments will be accepted in class or may be turned in to my office by 5:00pm on the day assigned with no penalty. After that, up to 10% of the total points possible will be *DEDUCTED* per day late (Saturday – Sunday counts as one day). After 3 days assignments will not be accepted. Unless specifically stated on the assignment sheet, collaboration is not permitted on assignments; all work must be your own. When collaboration is allowed, it is to only involve students in our class. You may always contact the instructor to answer questions not answered in class.

In Class Tests:

Tests are typically based upon what has been covered by lecture notes, previous labs, assignments, handouts, and text material. Tests will be given during lab times on Tuesday’s and will have a closed book part followed by an open notebook on-line part.

One-Time Test Retake: If you do poorly on one test you can redo the *same* test as a take home. The test grade earned will be *either* the *average* of the in-class test and the take home retake OR 80% whichever is lower. For example if you make a 50% on the in class test and a 100% on the take home retake, your grade for that test will be 75%; If you made a 70% on the test and a 100% on the retake, though the average is 85%, the grade for the test would be 80%.

1. You may only do this only once!
2. You are not allowed to consult with anyone on the retake. This especially applies to other class members and math workshop tutors. You may make free use of your text book, class notes, class handouts, course website materials and/or homework assignments but no other sources. Think serious about Wittenberg’s Code of Academic Integrity!
3. You will have one week to complete the take home test (but you may hand it in early). Do not need to hand in the original in-class test. I strongly suggest not looking at the old test but to treat the retake as a completely new test.
4. Since time is not a factor for the take-home retake, grading will be stricter. Therefore it is strongly suggested that you do not copy correct answers from the in-class test to your take home retake as grading will be stricter. Redo each question.
5. If you elect to retake a test you must contact me within 24 hours of the time a return the test so that I can give you a clean copy for the retake.

Final Project:

Instead of a final exam, there will be a final project. Details will follow.

Class Attendance Bonus: You are expected to attend every class. If a class is missed you are still responsible for any missed material (i.e. all lecture notes will be on-line). If you miss no more than 3 classes and no labs, 20 points will be added to your total points for the course. Note: Absences due to legitimate university sponsored events will not be counted provided I receive notification ahead of time.

Honor Code and Academic Integrity:

Academic dishonesty of any kind on homework or exams is not acceptable. This includes, but is not limited to, plagiarism or unauthorized collaboration with another individual on homework or tests.
Unless otherwise specified, ALL HOMEWORK assignments are to be done UNAIDED. If you have a question on any of the problem material or the code needed, you should contact me. You may always feel free to answer questions by another student about the syntax or semantics of the programming language (e.g., Mathematica). However, you should NOT ask nor answer questions related to the specifics of an assignment nor look at (nor copy) each other’s mathematics, computer code, or write-up unless the instructor indicates in the assignment that it is permitted. If you use code from a publicly available source, such as another text or public Web site, you must cite the source in your comments. No collaboration is allowed unless specifically stated on the assignment sheet. The following pledge must be both stated and signed by the student on each assignment, or the assignment will not be considered to have been turned in and it will not be graded:

*I affirm that my work upholds the highest standards of honesty and academic integrity at Wittenberg and that I have neither given nor received unauthorized assistance.*

Suspected cases of academic dishonesty will be reported to the Honor Council and will result an a grade of zero for that assignment. See your Student Handbook for more details regarding the Honor Code and academic dishonesty.

**Classroom Behavior:** Over the years a couple or three things began happening in class that really bug me! So I'm going to request that you do the following

1. Please - Switch off your cell phones and no texting in class!
2. No surfing the web
3. Please - don't get up in the middle of class to visit the water fountain or the rest room - unless it is ABSOLUTELY NECESSARY

Thank you!

**Finally** – Your learning in this course is important to me. I invite you to talk with me about ways to ensure your full participation in this course. Please be aware that Wittenberg is committed to providing reasonable accommodations for students with documented disabilities. If you are eligible for course accommodations because of a disability, you need to register with the Academic Services Office, 206 Recitation Hall. After you register, give me your self-identification memo from Academic Services and arrange to talk with me about your learning needs privately in a timely manner. Early identification at the start of the term is essential to ensure timely provision of services. If you have questions or would like more information about services for students with disabilities, please contact the Academic Services, 206 Recitation Hall, extension...