SYLLABUS FOR MATH 342A – METHODS OF APPLIED MATHEMATICS I
Fall 2015

Instructor: Antoni Luque (http://www.luquelab.com)
Lectures: T, Th: 12:30 pm—1:45 pm at EBA-410
Office Hours: T, Th: 11:30 am—12:30 pm at GMCS-514 (and by appointment)
E-mail aluque@mail.sdsu.edu

Important dates:
Tuesday, August 25: First lecture
Tuesday, October 6: Midterm #1
Thursday, November 5: Midterm #2
Thursday, December 3: Midterm #3
Friday, September 4: Last day to adjust schedule (adds, drops, grading basis)
Thursday, December 10: Last lecture before finals
Thursday, December 17: Final Exam (10:30am—12:30pm)

Course Description and Objectives
This 3-unit course introduces fundamental mathematical techniques commonly used in physics, chemistry, and engineering. By the end of this course, you should be able to
• use complex numbers to solve algebraic equations, integrals, and differential equations;
• apply matrix analysis, eigenvalues and eigenvectors, diagonalization;
• apply vector analysis, divergence theorem, Stoke’s theorem, and related integral theorems;
• solve ordinary differential equations;
• use computer software packages for matrix applications, and solving and graphing differential equations.

We will essentially cover chapters 1 through 10 from the textbook (Boas), although some parts will be omitted. Here is a summarized timeline of the course material:
• (0 weeks) 1. Infinite series, power series (you should know this from Calc II).
• (2 weeks) 2. Complex numbers.
• (2 weeks) 3. Linear equations: Vectors, matrices, and determinants.
• (0 weeks) 4. Partial differentiation (you should know this from Calc III).
• (1 weeks) 5. Multiple integrals: applications of integration.
• (3 weeks) 6. Vector analysis.
• (- weeks) 7. Fourier series (to be covered in Math342B).
• (3 weeks) 8. Ordinary differential equations.
• (1 weeks) 9. Calculus of variations.
• (1 weeks) 10. Tensor analysis (only curvilinear coordinates).
• (1 weeks) 11. Gamma, beta, and error functions (if time permits).

Prerequisites and expectations:
Math 150: Calculus I
Math 151: Calculus II
Math 252: Calculus III

Required readings and material:
The book should be available at the SDSU bookstore.

iClicker: You will need iClicker to answer multiple choice questions in class.

Grading:
Weights
In-class assessments 15%
Homework assignments will be posted in Blackboard each week and must be handed in each Thursday, except indicated otherwise. Late homework will not be accepted.

**Homework**

**Rules of Engagement**

**Rescheduling**

Late homework will not be accepted.

There will be no make-up tests.

**Personal conflicts**

Special arrangements can be made only in the most compelling and verifiable circumstances, such as disabilities. No special arrangements will be possible for family related issues (like weddings, visiting relatives, etc.), work related conflicts (like schedule, traveling, traffic, etc.), planned vacations, personal problems with roommates, etc.

**Disabilities**

If you are a student with a disability and accommodations for this class, it is your responsibility to contact Student Disability Services at (619) 594-6473. Do it as soon as possible to avoid delays receiving the accommodations. Recall that I cannot provide accommodations until receiving the letter from Student Disability Services. Your cooperation is appreciated.

**Attendance**

There will be not attendance record. It is your responsibility to be up to date in the progress of the course dates for homework, exams, and any possible changes in the syllabus.

**Academic integrity and honesty**

Cheating will result in a “F” and a referral to the Dean for further action. As a SDSU student, you have signed a statement of academic honesty committing yourself to be honest in all academic work and understanding that failure to comply with this commitment will result in disciplinary action. This statement is a reminder to uphold your obligation as a student at SDSU and to be honest in all work submitted and exams taken in this class and all others.

**General**

Disrespectful behavior, such as eating or reading material not related to the course will not be tolerated. Distracting those around you, including the instructor, will not be tolerated.

**Participation**

Participation in class is encouraged. If you have a question, ask it! If you do not understand something, say so! Any question that will help you to better understand the material is not stupid. You all should be patient and respectful with those who ask questions in an effort to do well.

**Addenda**

The instructor reserves the right to make modifications to the syllabus. Any addendum will be announced in class.