

AME525 Advanced Engineering Mathematics I, Spring 2018

Time: MW5-6:20
OHE122

Instructor: Charles S. Campbell
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Office Hour: W 4-5 or by appointment

I will answer questions about the lectures only.

Questions about homework should go to the TA:

TA: Longlong Chang
(213) 705-5051
Email: longlonc@usc.edu
Office hours will be held in VHE202
Office hours: M4-5, T2-4, W1-2 or by appointment

Text: P.V. O'Neil, Advanced Engineering Mathematics 8th Edition

Grading:	Homework:	10%
	Midterm:	45%
	Final:	45%

Course Outline:

Linear Algebra: Vector spaces, matrices, determinants, Cramer's rule, special matrices, inverse matrix, rank of a matrix, elementary operations, Linear Equations, Gauss-Jordan reduction, solvability of linear equations, linear vector spaces, linear equations and vector space, eigenvalue problem, orthogonalization of vector sets, quadratic forms, equivalent matrices and transformations, Hermetian matrices, multiple eigenvalues of symmetric matrices, functions of symmetric matrices, Cayley Hamilton theorem

Complex Analysis: Complex numbers, limits, complex functions, differentiation, Cauchy-Riemann equations, Integration, complex series, multiple valued functions, Taylor series, Laurent series, residues and their applications, conformal mapping.

Notes:

The midterm will act as the final for the linear algebra portion of the course and the final for complex variables.

Topics in class may not be covered by the book or may be handled very differently from the book. I want you to treat your classnotes as your primary text and the assigned text as a reference book. You will be responsible for what is done in class.

Homework will be posted on the class website by Thursday morning and due at the start of class the following Wednesday. No late homework is accepted.

I will be generally be off campus on Fridays but available by email.

On exams you may use your book, (O'Neil 8th edition only), your classnotes, homeworks and anything downloaded from the AME525 website, but no other sources. You may not use electronic including graphing calculators, computers, cellphones, tablets, smart watches or anything with internet access.

For on-campus students, all electronic devices are to be off during class. I will make an exception for people using tablets to take notes with the understanding that they are only used to take notes.

O'Neil, the author of the textbook and creator of the homework problems assumes that the students have access to modern world tools. (In fact Maple used to be included with the book.) You will not be able to use these on the exams so I recommend you do not use them –except as a last resort. But you may run into a tough integral or two which you should be able to solve using the Online Integrator or Wolfram Alpha (just google them).

The final exam will be Wednesday, May 2, 4:30-6:30pm.

Statement on Academic Conduct and Support Systems

Academic Conduct

Plagiarism – presenting someone else's ideas as your own, either verbatim or recast in your own words – is a serious academic offense with serious consequences. Please familiarize yourself with the discussion of plagiarism in *SCampus* in Section 11, *Behavior Violating University Standards* <https://scampus.usc.edu/1100-behavior-violating-university-standards-and-appropriate-sanctions>. Other forms of academic dishonesty are equally unacceptable. See additional information in *SCampus* and university policies on scientific misconduct, <http://policy.usc.edu/scientific-misconduct>.

Discrimination, sexual assault, and harassment are not tolerated by the university. You are encouraged to report any incidents to the *Office of Equity and Diversity* <http://equity.usc.edu> or to the *Department of Public Safety* <http://capsnet.usc.edu/department/department-public-safety/online-forms/contact-us>. This is important for the safety of the whole USC community. Another member of the university community – such as a friend, classmate, advisor, or faculty member – can help

initiate the report, or can initiate the report on behalf of another person. *The Center for Women and Men* <http://www.usc.edu/student-affairs/cwm/> provides 24/7 confidential support, and the sexual assault resource center webpage <http://sarc.usc.edu> describes reporting options and other resources.*

Support Systems

A number of USC's schools provide support for students who need help with scholarly writing. Check with your advisor or program staff to find out more. Students whose primary language is not English should check with the *American Language Institute* <http://dornsife.usc.edu/ali>, which sponsors courses and workshops specifically for international graduate students. *The Office of Disability Services and Programs* http://sait.usc.edu/academicsupport/centerprograms/dsp/home_index.html provides certification for students with disabilities and helps arrange the relevant accommodations. If an officially declared emergency makes travel to campus infeasible, *USC Emergency Information* <http://emergency.usc.edu> will provide safety and other updates, including ways in which instruction will be continued by means of blackboard, teleconferencing, and other technology.