

# USC Viterbi School of Engineering

## **AME 526 – Engineering Analytical Methods**

**Units: 3**

**Summer 2017—Tue, Thu—1:00-4:10 pm**

**Location: OHE 100B**

**Instructor:** Dr. Inna Abramova

**Office:** RRB 211

**Office Hours:** Tuesday, Thursday, 10:00 am -12:00 pm (on-campus students);

Web-conferencing time for DEN students - TBD

**Contact Info:** [abramova@usc.edu](mailto:abramova@usc.edu)

The best way to reach me outside of the office hours is by email. I try to answer emails quickly, typically within 24 hours. All emailed questions must be specific or I cannot answer them. If you have a homework question, please, include a scan of your work (please, check that it's readable before you send it).

**IT Help:** USC Information Technology Services

<http://itservices.usc.edu/>

**Hours of Service:** Monday-Thursday: 8:00 am-7:00 pm,

Friday: 8:00 am-5:00 pm,

Saturday-Sunday: 1:00 pm-5:00 pm

**Contact Info:** [consult@usc.edu](mailto:consult@usc.edu), (213) 740-555

## Course Description

Typical engineering problems discussed on a physical basis. Ordinary differential equations; Fourier series; Fourier integrals; Laplace transform; partial differential equations; Bessel functions.

## Required Textbook:

Peter V. O'Neil, "*Advanced Engineering Mathematics*", 7<sup>th</sup> edition, Cengage Learning, May 2013, ISBN: ISBN: 978-1-111-42741-2

## Description and Assessment of Assignments

One midterm exams, 4 sets of weekly homework problems, and the final exam will be assigned and graded during the semester. The accumulated points that a student earned from all the assignments will be used to assign a grade for the student. The grading is curved.

All examinations are open book (required text only), notes, homework and handouts. No other sources are allowed. No cellphones, computers, tablets, or anything with wireless or internet access may be used.

## Grading Breakdown

Assignment	Points	% of Grade
4 Homeworks, 25 pts. Each	100	25
Midterm	120	30
Final Exam	180	45
<b>TOTAL</b>	400	100

## Assignment Submission Policy

Weekly homework assigned, and due the following week. The assignments are posted online, and hand-written homeworks must be scanned and submitted online by midnight of the due date. Please, make sure that your scanned work is readable before submitting.

**No late work is accepted.**

## Course Schedule: Tentative Weekly Breakdown

	Topics/Daily Activities	Readings and Homework	Deliverable/ Due Dates
<b>Week 1</b> 6/28-7/02	Ordinary Differential Equations	Chapter 1	
<b>Week 2</b> 7/03-7/09	Ordinary Differential Equations Laplace Transform	Chapter 1, 2	
<b>Week 3</b> 7/10-7/16	Laplace Transform Series Solution	Chapter 3, 4 HW1 assigned	
<b>Week 4</b> 7/17-7/23	Fourier Series Fourier Transform <b>Midterm Exam, 07/18</b>	Chapter 13, 14 HW2 assigned	HW1 due 7/18
<b>Week 5</b> 7/24-7/30	Partial Differential Equations	Chapter 16, 17, and 18 HW3 assigned	HW2 due 7/25
<b>Week 6</b> 7/31-8/06	Partial Differential Equations Separation of Variables Similarity Solutions Transform Methods	Chapter 15,16, 17, and 18 HW4 assigned	HW3 due 8/01
<b>Week 7</b> 8/07-8/08	Final Exam		HW4 due 8/08
<b>FINAL</b>	<b>Final Exam</b>		<b>8/08</b> <b>1:00 – 4:10 pm</b>

## 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/departement-public-safety/online-forms/contact-us>. This is important for the safety 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 [sarc@usc.edu](mailto: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](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.