

SYLLABUS

DIFFERENTIAL EQUATIONS FOR APPLICATIONS

SPRING SEMESTER 2018

http://www.phys.uconn.edu/~rozman/Courses/m3410_18s/



Last modified: February 20, 2018

Course description: power series solutions of differential equations; special functions (Bessel, Legendre, Laguerre); Fourier series; partial differential equations and boundary value problems.

Lectures: MoWe 5:15pm – 6:30pm, Oak Hall 104

Course webpage: http://www.phys.uconn.edu/~rozman/Courses/m3410_18s/

Instructor: Michael Rozman

email: michael.rozman@uconn.edu
office hours: Mo 6:30 PM – 7:30 PM in OAK104,
Tu 6:15 PM – 7:15 PM in MONT421,
We 6:30 PM – 7:30 PM in OAK104,
by appointments

Textbook:

W. E. Boyce, R. C. DiPrima, *Elementary Differential Equations and Boundary Value Problems*, Wiley, Editions 7–11 (i.e. any edition published after 2000)

Exams: Two closed book midterm exams and a closed book *cumulative* final exam

Grading scheme: The course grade will be calculated using the following scheme.

Homework	35%
2 Midterms	35%
Final exam	30%

The rounding to integers is done using the default rounding mode specified in the IEEE754 standard for floating point arithmetic.

Class schedule: this is a *preliminary* schedule.

Week(s)	Subject
1-2	Basic concepts. Differential equations of the first order
3-5	Differential equations of the the second order
6	Midterm I - Mon, Feb 19
6-7	Series methods. Special functions
8	Fourier series
9	Spring recess
10-12	Partial differential equations
13	Midterm II - Mon, Apr 2
13-15	Sturm-Liouville problem

Communications: talking in person is the preferred method to contact the instructor; email is the next option.

- please include the tag “[math3410]” (without quotes, no spaces) in the subject of your email, e.g. “[math3410] midterm II review”
- please no emails with attachments unless requested by the instructor. Use *UConn File DropBox*, <https://dropbox.uconn.edu/dropbox>, or *UConn FileLocker*, <http://web2.uconn.edu/filelocker/>, for submitting large files

Homework: Homework assignments submitted on time may be returned (at the discretion of the instructor) for corrections and better grade after the initial grading. No such option is available for late assignments.

Homework assignments are not accepted after the solutions had been discussed in class and/or had been posted online. Individual emergencies can be accommodated by extra credit assignments.

You are welcome to discuss the homework's problems with others in order to better understand them but the work you turn in must be your own. In particular, you must run your own calculations (where applicable) and communicate and explain the results in your own words.

Assignments that are hard to understand are also hard to grade correctly, therefore: (a) use words and pictures to supplement your equations; (b) your presentation must progress linearly down the page.

Requirements for written assignments:

- Use letter-size paper. Use only one side of each sheet.
- Box your final answer(s).
- Staple your notes together, (i.e. no paper clips, torn or folded corners) with the assignment cover page (the cover page is used for grading and communicating the instructor's feedback)

Highly recommended: make copies of homework assignments for your own files.

Recommended reading:

- M. Braun, *Differential Equations and Their Applications: An Introduction to Applied Mathematics*, Springer, 4th edition, 1992
- M. Tenenbaum and H. Pollard, *Ordinary Differential Equations*, Dover, 1985