UF | Mike Jury
Department *of* Mathematics

Search Mike Jury

Differential Equations for Engineering & Physical Sciences (MAP4305/5304)

Fall 2015: Section 147E, MWF 3rd hour, Little Hall, room 203

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Office Hours: M 7th, WF 4th

Text: Fundamentals of Differential Equations and Boundary Value Problems, 6th Edition, by Nagle, Saff, and Snider

Course Content

We will treat Chapters 8, 9, 10, and 11 from the text. Topics will include series solutions, matrix methods for systems, some topics from Partial Differential Equations, and eigenvalue problems.

This week's lectures

Daily lecture contents will be posted here as the term progresses.

Monday 21 September: Introduction to Matrix Methods for linear systems, Section 9.1

Wednesday 23 September: Review of linear algebra, sections 9.2 and 9.3

Friday 25 September: solving homogeneous systems, section 9.5

Monday 28 September: more on solving homogeneous systems, the fundamental matrix, the Wronskian; sections 9.4 and 9.5

Past Lectures

Monday 24 August: Introduction to the course, Section 8.1

Wednesday 26 August: Taylor polynomials, review of power series facts; Sections 81. and 8.2

Friday 28 August: analytic functions, power series solutions to differential equations; Sections 8.2 and beginning of 8.3

Monday 31 August: series solutions continued; finish Section 83

Wednesday 2 September: equations with analytic coefficients; regular and singular points, Section 8.4 and beginning of 8.6

Friday 4 September: the Frobenius method, Section 8.6, discussion of suggested problems

Monday 7 September: NO CLASS (Labor Day)

Wednesday 9 September: finding a second independent solution; expansions near infinity, Section 8.7

Friday 11 September: expansions near infinity, generating functions, Section 8.8

Monday 14 September: the hypergeometric equation, the Gamma function, Section 8.8

Wednesday 16 September: review for exam 1 (Chapter 8)

Friday 18 September: Exam 1

Homework assignments

There will be four homework assignments collected during the term (one for each chapter). In addition further suggested problems will be posted here.

Week 1 suggested problems: **8.1** (3,7,9.11) **8.2** (3,11,21,23,27,31) **8.3** (3,11,13,17)

Week 2 suggested problems: **8.3** (17, 19, 27) **8.6** (3, 7, 11, 21, 25, 39)

Week 3 suggested problems: **8.7** (3,7, 15) **8.8** (1,3,5) **Chapter Review** (1, 3, 4, 5, 6(a), 7, 8(a))

Week 5 suggested problems **9.1** (1, 5, 7, 13) **9.2** (1, 5, 13) **9.3** (3, 7, 9, 13)

Week 6 suggested problems **9.5** 1, 5, 9, 11, 13, 15 **9.4** 3, 5, 15, 19

Homework 1 – due Monday September 14th – **8.3** (32), **8.4** (29), **8.7** (21), **8.8** (37)

Homework 2 – due Monday October 12th – **9.4** (37), **9.5** (39), **9.7** (33), **9.8** (27(c))

Homework 3 – due Monday November 2nd -TBA

Homework 4 – due Wednesday December 2nd

Grading policies

The course grade will consist of the homework average (20% of the final grade) and four midterm exams (20% each). Final grades are assigned according to the standard scale: 94-100 A, 90-93 A-, 87-89 B+, 83-86 B, 80-82 B-, 77-79 C+, etc.

Tentative exam dates are as follows:

Exam 1 Friday September 18th   Exam 1 Solutions
Exam 2 Friday October 16th
Exam 3 Monday November 9th
Exam 4 Monday December 7th

The final exam (Thursday, Dec. 17th, 12:30–2:30 PM) will serve as a make-up.

No notes or books will be allowed during exams.

Additional Information:

Grades.

Grading will be in accord with the UF policy stated at

https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx.

Academic Honesty

The course will be conducted in accordance with the University honor code and academic honesty policy, which can be found in the

student guide

Accommodation for students with disabilities.

"Students with disabilities requesting accommodations should first register with the Disability Resource Center(352-392-8565,

https://www.dso.ufl.edu/drc/

) by providing appropriate documentation. Once registered, students will receive an accommodation letter which must be presented to the instructor when requesting accommodation. Students with disabilities should follow this procedure as early as possible in the semester."

Online Evaluations.

"Students are expected to provide feedback on the quality of instruction in this course by completing online evaluations at

https://evaluations.ufl.edu

. Evaluations are typically open during the last two or three weeks of the semester, but students will be given specific times when they are open. Summary results of these assessments are available to students at https://evaluations.ufl.edu/results/."

Contact information for the Counseling and Wellness Center.

392-1575 http://www.counseling.ufl.edu/cwc/Default.aspx

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