

## Ordinary Differential Equations MA2051 D01-D06, D13, D16 – 2016 D term

<b>Professor</b>	<a href="#">Dr. Suzanne L. Weekes</a>
<b>Office</b>	202D Stratton Hall
<b>Email</b>	<a href="mailto:sweekes@wpi.edu">sweekes@wpi.edu</a>
<b>Office Hours</b>	Mon, Thurs 1:30 – 3:00 pm in SH 202D, and by appointment
<b>Course Web Page</b>	<a href="http://www.wpi.edu/~sweekes/MA2051">http://www.wpi.edu/~sweekes/MA2051</a>
<b>Lectures</b>	MTRF 12:00 - 1:00 Salisbury Labs 115
<b>Grading</b>	Quizzes = 20 % Homework = 30% Exams = 2 x 25 % = 50%
<b>Textbook</b>	<b>Introduction to Differential Equations</b> by S. Farlow Textbook errors: <a href="http://userpages.umbc.edu/~rostantia/farlow-errata.html">http://userpages.umbc.edu/~rostantia/farlow-errata.html</a>
<b>Lecture/Homework Schedule</b>	<a href="http://users.wpi.edu/~sweekes/MA2051/Schedule_D2016.html">http://users.wpi.edu/~sweekes/MA2051/Schedule_D2016.html</a>
<b>Teaching Assistants</b>	Andrew Holmes <a href="mailto:andholmes@wpi.edu">andholmes@wpi.edu</a> Office Hours: Wed 11:30 – 1:30 in SH 204 Darren King <a href="mailto:daking@wpi.edu">daking@wpi.edu</a> Office Hours: Fri 2:00 – 3:00 in SH 204
<b>Important Information</b>	<a href="#">Conferences and Teaching Team</a> , <a href="#">Course Outline</a> , <a href="#">Course Information</a> , <a href="#">Students with Disabilities</a> , <a href="#">Academic Dishonesty</a>

### Conferences and Teaching Team

**Finn O'Brien**

**Section D01** - SH 106, TR 8:00-8:50  
email: [feobrien@WPI.EDU](mailto:feobrien@WPI.EDU)

**Swarnadeep Majumder**

**Section D02** - SH 304, TR 8:00-8:50  
email: [smajumder@wpi.edu](mailto:smajumder@wpi.edu)

**Vishal Kumar Rathi**

**Section D03** - SH 203, TR 1:00-1:50  
email: [vkrathi@wpi.edu](mailto:vkrathi@wpi.edu)

**Andrew Holmes**

**Section D04** - SH 304, TR 10:00-10:50  
email: [andholmes@wpi.edu](mailto:andholmes@wpi.edu)

**Thomas Leonard**

**Section D05** - SH 308, TR 3:00-3:50  
email: [tleonard@wpi.edu](mailto:tleonard@wpi.edu)

**Jiaxun (Carrie) Xie**

**Section D06** - SH 304, TR 11:00-11:50

email: [jxie@wpi.edu](mailto:jxie@wpi.edu)

**Leonard Fisher**

**Section D13** - SH 306, TR 10:00-10:50

email: [ljfisher@wpi.edu](mailto:ljfisher@wpi.edu)

**Darren King**

**Section D16** - SH 306, TR 1:00-1:50

email: [daking@wpi.edu](mailto:daking@wpi.edu)

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### Course Outline

This is a first course in differential equations.

In many ways this course is the capstone of our basic mathematics sequence. You will use many of the concepts introduced in your previous calculus courses and gain further insights regarding their application in science and engineering. The topics in this course provide essential background and preparation for many other courses at WPI and you will use them throughout your career.

Our goal is that you truly understand and become proficient in the material covered.

At the end of this course you should be able to

- solve separable differential equations via integration;
- solve first order linear equations using different methods;
- solve second order, constant-coefficient differential equations using characteristic functions, and undetermined coefficients;
- set up differential equation models for some real problems;
- set up second order differential equation models for oscillating systems;
- compute physical quantities such as amplitude, period, natural frequency, resonant frequency, and amplitude at resonance for forced spring-mass systems;
- use the Laplace Transform to solve ODEs.

**Recommended background:** Calculus I-IV, i.e. MA1021-MA1024.

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### Course Information

The class meets six times a week: four times in lecture with the professor, and twice in conference with your TA or PLA. You are responsible for any and all material discussed in lecture and conference.

#### Attendance:

Aside from the 6 hours that you spend in class each week, you should devote **at least another 8-10 hours** to studying on your own: reading the book, reading and organizing your notes, solving problems.

#### Conferences:

The conference sessions are conducted by a member of this course's teaching team.

Lecture, homework and review material may be discussed during these hours.

The majority of the paper shuffling work of the course will occur during the conference sessions.

Please note that you must attend the conference section for which you are registered.

#### Homework:

Homework is a required component of the course and is assigned for each section of the book covered.

Problems will be assigned daily and posted on the class web page at [http://users.wpi.edu/~sweekes/MA2051/Schedule\\_D2016.html](http://users.wpi.edu/~sweekes/MA2051/Schedule_D2016.html)

It is necessary to do, at a minimum, the assigned problems so that you can learn and understand the mathematics. You should do additional problems for further practice. You should feel free to *discuss* homework with one another, however, homework solutions must be written up on your own and **must not be copied from anyone else's work or from anywhere else**. Academic dishonesty will not be tolerated.

Written homework will be collected in the conference section. **No late homework will be accepted.**

Your work should be very legible and done neatly. If the work is not presentable, and is illegible, you will not receive credit for it.

**Please staple** the sheets of your assignment together.

In the upper right hand corner of your assignment you should write your name, the class section number, and the list of book sections for the assignment. Discipline yourself to write clear readable solutions, they will be of great value as review.

There may also be assignments using the online software [WebWork](#). You would have used this system for your Calculus Placement Exam before you started classes at WPI. You receive full credit for correct WebWork answers, independent of the number of attempts made.

### Quizzes:

There will be short 15-minute quizzes on the course material that will be given from time to time.

Your lowest quiz score will be dropped. Check the daily course schedule at [http://users.wpi.edu/~sweekes/MA2051/Schedule\\_D2016.html](http://users.wpi.edu/~sweekes/MA2051/Schedule_D2016.html) to see when a quiz is coming up.

**There are absolutely no make-up quizzes.** If you miss a quiz for any reason, this will simply count as a zero on the quiz and ought to be dropped when calculating your quiz score.

### Examinations:

There will be two in-class exams.

EXAM I will **tentatively** be on Thursday April 7<sup>th</sup>, 2016 .

EXAM II will definitely be on Tuesday May 3<sup>rd</sup>, 2016.

No calculators or books may be used during these exams.

**No make-up exams will be given.**

### Mathematics Tutoring Center:

The Mathematics Tutoring Center **located outside of Stratton Hall 002A** is available for any WPI student taking a course in calculus, differential equations, statistics, and linear algebra.

- Monday-Thursday 10am-8pm
- Friday 10am-4pm.
- No appointment needed - just come by!

### MASH:

The Academic Resources Center also holds Math and Science Help (MASH) for MA2051.

The MA2051 Mash Leader is **Nasjelah Thodhoraqi** [nthodhoraqi@wpi.edu](mailto:nthodhoraqi@wpi.edu) and she is available as follows:

Wednesday 11-12	Academic Resources Center, Daniel Hall
Tuesday, Thursday 6-7	Exam Proctoring Center, Morgan Hall

The Academic Resources Center also has 1:1 tutors for this course. Visit <http://www.wpi.edu/offices/advising/makean02.html>

### Academic Dishonesty

Please read WPI's [Academic Honesty Policy](#) and all its pages. Make note of the examples of academic dishonesty; i.e. acts that interfere with the process of evaluation by misrepresentation of the relation between the work being evaluated (or the resulting evaluation) and the student's actual state of knowledge.

**Each student is responsible for familiarizing him/herself with academic integrity issues and policies at WPI. All suspected cases of dishonesty will be fully investigated.**

Ask Prof. Weekes if you are in any way unsure whether your proposed actions/collaborations will be considered academically honest or not.

### Students with Disabilities

If you need course adaptations or accommodations because of a disability, or if you have medical information to share with me that may impact your performance or participation in this course, please make an appointment with me as soon as possible.

If you have approved accommodations, please go to the Exam Proctoring Center (EPC) in Morgan Hall to pick up Letters of Accommodation.

If you have not already done so, students with disabilities who need to utilize accommodations in this class are encouraged to contact the Office of Disability Services (ODS) as soon as possible to ensure that such accommodations are implemented in a timely fashion. This office can be contacted via email [DisabilityServices@wpi.edu](mailto:DisabilityServices@wpi.edu), via phone: (508) 831-4908, or in person: 137 or 124 Daniels Hall.