

Washington University - St. Louis
Fall 2020

Math 217 - Differential Equations

Lecture: Section 01	Room: TBA	Time: MWF 9:00am – 9:45am
Lecture: Section 02	Room: TBA	Time: MWF 11:00am – 11:45am
Recitation A:	Room: Online	Time: T 8:00am – 8:45am
Recitation B:	Room: Simon 23	Time: T 9:00am – 9:45am
Recitation C:	Room: Online	Time: T 9:00am – 9:45am
Recitation D:	Room: Mallinckrodt 302	Time: T 10:00am – 10:45am
Recitation E:	Room: McDonnell 162	Time: T 11:00am – 11:45am
Recitation F:	Room: Mallinckrodt 305	Time: T 12:00pm – 12:45pm
Recitation G:	Room: Brown 118	Time: T 1:00pm – 1:45pm
Recitation H:	Room: Online	Time: T 1:00pm – 1:45pm

Course Webpage: http://www.math.wustl.edu/~wick/teaching/math217_F2020.html

Instructor:

Section 01: Humberto Diaz Office: via Zoom
Office Phone: N/A Office Hours: 9:00am-10:00am
Email: humberto@wustl.edu or by appointment

Section 02: Brett D. Wick Office: via Zoom
Office Phone: 314-935-6765 Office Hours: 11:00am-12:00am
Email: wick@math.wustl.edu or by appointment

Assistant to the Instructor:

Recitation A, C, H: Soumya Sinha Babu Office Hours: Thursday 1:00pm – 4:00pm
Email: soumya@wustl.edu

Recitation E, F, G: Nathan Wagner Office Hours: Monday 2:00pm – 3:00pm
Email: nathanawagner@wustl.edu Wednesday 1:00pm-3:00pm

Office hours for the Assistant to the Instructor are handled via the Math Help Room.

Text: The following text is required for the course:

Title: “Differential Equations and Boundary Value Problems: Computing and Modeling”

Authors: Edwards, Penney & Calvis

Edition: 5th

ISBN: 978-0321796981

Description and Prerequisite: Introduction to ordinary differential equations: first-order equations, linear equations, systems of equations, series solutions, Laplace transform methods, numerical solutions. Prerequisite: successful completion of, or concurrent enrollment in, Math 233.

Attendance: Attendance is required for all recitations and makes a portion of your grade. The student who misses a recitation meeting is responsible for any assignments and/or announcements made. Office hours will not be utilized to re-teach material presented in class. However, questions to better understand the course are always welcome.

There will be no opportunities for make-up tests after the fact. **In the event of an absence due to travel representing Washington University - St. Louis, such as an intercollegiate sports competition, you must notify the professor at least two weeks in advance to arrange an early test or other alternative.** Otherwise, such absences will be treated as personal. In the event of a missed exam, contact Blake Thornton: bthornton@wustl.edu.

Homework: This course will have weekly homework assignments. This will include problems from **Webwork** and problems from the textbook collected and graded via **Crowdmark**.

Webwork will usually be due on Mondays throughout the semester; access is through Canvas. Your two lowest WeBWoRk scores will be dropped to account for any missed assignments.

Crowdmark homework will be due on Wednesdays. Your lowest hand-graded homework will be dropped. You are encouraged to work together on homeworks, but submitted solutions must be your own individual work; i.e., copying is not allowed.

Worksheets: There will be weekly worksheets throughout the semester done during the recitation.

Exams: This course will have five shorter mid-term exams and a comprehensive final exam. The exam dates for the course will take place on:

Exam Dates:

Exam 1	Tuesday, 10/06/2020 (covers Chapter 1)
Exam 2	Tuesday, 10/20/2020 (covers Sections 2.1, 2.2, Chapter 3)
Exam 3	Tuesday, 11/10/2020 (covers Sections 4.1, 4.2, Chapter 5)
Exam 4	Tuesday, 12/01/2020 (covers Chapter 7)
Exam 5	Tuesday, 12/15/2020 (covers Chapter 8, Section 6.1)
Final Exam	Tuesday, January 5, 10:30am – 12:30pm

Note: all exams will be done virtually during discussion, whether you are scheduled for an in-person or virtual discussion section. For those in a virtual discussion section, this will mean that you will take your exam during your regularly scheduled session. For those in an in-person discussion section, this will mean that you will take your exam during the usual time for your discussion section, albeit in a virtual session.

Exam/Homework Re-Grading Policy: Exams/Homework will be returned via CrowdMark and upon return you will have an opportunity to review your exam/homework and its grading. If you disagree with the grading of your exam/homework you are to notify your Instructor of the issue at the time of return, and the Instructor/AI will collect your exam and bring it to me for consideration. If you do not notify the instructor within 72 hours of

having the exam/homework returned that you disagree with the grading, then your score is set and no additional regrades will be considered for that exam. If you request a regrading of your exam, you may additionally arrange a meeting to discuss the regrading issue with the instructor directly.

Calculators: Calculators (or computational devices of any sort) shall not be used for tests. No credit will be given on tests for a correct answer without the intermediate steps. Notes or “cheat sheets” will not be allowed on exams.

Piazza: This term we will be using Piazza for class discussion. The system is highly catered to getting you help fast and efficiently from classmates, the AI, and the instructors. Rather than emailing questions to the teaching staff, I encourage you to post your questions on Piazza. If you have any problems or feedback for the developers, email team@piazza.com. The link for the Piazza page is: <https://piazza.com/wustl/fall2020/fl2020l24math21701>

Learning Disabilities: It is the right of any student with a certified learning disability to request necessary accommodation. Such requests must be made well in advance of the time that the accommodation is required and a letter of documentation from the [Disability Resources](#) office must be presented at the time of any request.

Academic Honesty: It is expected that all students are aware of their individual responsibilities under the [WUSTL Academic Integrity Policy](#), which will be strictly adhered to in this class. **Any violations must be reported directly to the Dean of Students.**

Grades: Grades will be based upon attendance, worksheets, mid-term exams, the final exam, and homework. Course grades will be assigned from the *maximum* of the following formulas:

	Method 1	Method 2	Method 3
Attendance	5%	5%	5%
Worksheets	10%	10%	10%
Homework	10%	10%	10%
Midterm Exams	60%	50%	40%
Final Exam	15%	25%	35%

The usual ten-point scale will be used (A: 90-100, B: 80-89, C: 70-79, D: 60-69, F: 0-59), however, if necessary, adjustments will be made to arrive at a standard grade distribution for the course. On an individual basis, significant improvement over the semester will be taken into account. A to be announced number of worksheet grades and a to be announced number of homework grades will be dropped when computing your final grade for the course. This is the only mechanism for coping with personal events such as illness and family emergencies.

For students taking the course with the Pass/Fail option, the threshold for a passing grade will be a “C”.

Additional Resources: In addition to the textbook, lectures, and office hours there are other resources available that might be of use for you during the course. Students can also receive additional help at the Mathematics and Statistics Help Room; see the website [Help](#)

Room for more information. You are also welcome to find additional resources available online to help with your mastery of the material.

Policy Regarding Online Course: In the event the course needs to transition to completely online there will be minimal changes to the course. As the lectures, homework and exams are all already online, the only substantive change will be to have the recitation move to a completely online format.

COVID Safety Procedures: Students are expected to follow university-mandated COVID safety procedures at all times, and stay informed of any changes to these procedures. Failure to do so will result in you being removed from the classroom, and possible university disciplinary procedures. Masks and social distancing are the most important safety measures we can take; it is also important that you wash your hands and clean surfaces as frequently as possible.

Masks are mandatory at all times in the classroom; if you have a medical condition that precludes wearing one, contact Disability Resources to discuss accommodations before coming to class.

Classroom layout and activity design will account for safe social distancing. Current guidelines allow close contact in groups of 3 for up to 15 minutes. If you are uncomfortable with that level of close contact, you may continue to socially distance; if that isn't working, talk to your instructor about possibly moving to an online section.

Classroom capacities have been strictly limited this semester for safety purposes. You may not attend in-person sections other than the one you are assigned to.

If you are sick: If you are sick, quarantined, or do not pass WUSTL self-screening, do not come to class in person. Notify your instructor and the assistant to the instructor. The worksheet for that day will be provided to you via email and you will have 24 hours to complete it.

If your instructor is sick: If your instructor is sick, quarantined, or does not pass self-screening, your class meeting may need to move online for the day. Please check Canvas (or your email) immediately before you leave for class in case your meeting needs to move online at the last minute.

Important Dates for Fall 2020:

September 14	First day of classes
November 26-27	Thanksgiving Break
December 18	Last Day of Classes

Schedule with topics covered in Math 217:

Date	Topic/Section of Text
09/14/2020	1.1 Introduction
09/15/2020	No discussion
09/16/2020	1.2 Integrals as solutions
09/18/2020	1.3 Slope fields
09/21/2020	1.4 Separable equations
09/22/2020	Discussion: Worksheet 1
09/23/2020	1.5 Linear first-order equations
09/25/2020	1.5 Linear first-order equations (cont.)
09/28/2020	1.6 Other methods
09/29/2020	Discussion: Worksheet 2/Review for Exam 1
09/30/2020	1.6 Other methods (cont.)
10/02/2020	2.1 Population models
10/05/2020	2.2 Equilibrium solutions
10/06/2020	Discussion: Exam 1 (done virtually)
10/07/2020	3.1 Second-order linear equations
10/09/2020	3.2 General solutions
10/12/2020	3.3 Homogeneous equations with constant coefficients
10/13/2020	Discussion: Worksheet 3/Review for Exam 2
10/14/2020	3.3 Homogeneous equations with constant coefficients (cont.)
10/16/2020	3.4 Mechanical vibrations
10/19/2020	3.5 Non-homogeneous equations and undetermined coefficients
10/20/2020	Discussion: Exam 2 (done virtually)
10/21/2020	4.1 First-order systems
10/23/2020	4.2 Method of elimination
10/26/2020	5.1 Matrices and linear systems
10/27/2020	Discussion: Worksheet 4
10/28/2020	5.2 Eigenvalue method
10/30/2020	5.2 Eigenvalue method (cont.)
11/02/2020	5.3 Gallery of solution curves
11/03/2020	Discussion: Worksheet 5/Review for Exam 3
11/04/2020	5.5 Multiple eigenvalue solutions
11/06/2020	5.5 Multiple eigenvalue solutions (cont.)
11/09/2020	5.6 Matrix exponential
11/10/2020	Discussion: Exam 3 (done virtually)
11/11/2020	7.1 Laplace transforms/inverse transforms
11/13/2020	7.2 Transformation of IVP's
11/16/2020	7.3 Translation and partial fractions
11/17/2020	Discussion: Worksheet 6
11/18/2020	7.3 Translation and partial fractions (cont.)
11/20/2020	7.4 Derivatives, integrals and products of transforms
11/23/2020	7.5 Periodic and piece-wise continuous functions
11/24/2020	Discussion: Worksheet 8/Review for Exam 4
11/25/2020	7.6 Impulses and delta functions
11/26/2020	No Class

Date	Topic/Section of Text
11/30/2020	8.1 Introduction and review of power series
12/01/2020	Exam 4 (done virtually)
12/02/2020	8.2 Series solutions near ordinary points
12/04/2020	8.2 Series solutions near ordinary points (cont.)
12/07/2020	8.3 Regular singular points
12/08/2020	Worksheet 7/Review for Exam 5
12/09/2020	8.3 Regular singular points (cont.)
12/11/2020	Catch-up
12/14/2020	8.4 Frobenius method
12/15/2020	Exam 5 (done virtually)
12/16/2020	6.1 Stability and the phase plane
12/18/2020	Catch-up

University Policies

COVID-19 Health and Safety Protocols: Exceptions to course policies, expectations, and requirements (including attendance and assignment deadlines) because of a COVID-19 diagnosis, symptoms consistent with COVID-19, or exposure to a person with a confirmed or suspected COVID-19 diagnosis that requires quarantine or isolation will be made in collaboration between the student and instructor. In these cases, please notify your instructor as soon as possible to discuss appropriate accommodations.

While on campus, it is imperative that students follow all public health guidelines established to reduce the risk of COVID-19 transmission within our community. The full set of University protocols can be found [here](#). This includes:

- Complying with physical distancing requirements at all times and adhering to signage and environmental cues. This includes not congregating before or after class as well as during breaks or class activities.
- Complying with universal masking. All individuals on campus must wear disposable masks or cloth face coverings while occupying indoor public settings, including: multi-person offices; hallways; stairwells; elevators; meeting rooms; classrooms; restrooms; and when in campus outdoor spaces unless they can maintain six feet of physical distance from others. In the event that a student cannot wear a mask due to a medical condition, they should contact Habif or Disability Resources to seek an accommodation and, if an accommodation is granted, communicate with their instructor.
- Practicing healthy personal hygiene, including frequent handwashing with soap and warm water for at least 20 seconds and/or using hand sanitizer with at least 60% alcohol.
- Complying with cleaning and sanitation protocols. Students may be responsible for wiping down common surfaces after use, particularly those that might be shared with others (e.g. classroom desks).

We take your health and the health of our community very seriously. Any Danforth Campus student who is currently diagnosed with COVID-19, is experiencing symptoms consistent with COVID-19, or has had direct contact with a person with a confirmed or suspected COVID-19 diagnosis must remain home and isolate yourself from others. Students who have symptoms and/or do not pass the screening protocol must call the Habif Health and Wellness Center at 314-935-6666 for additional instructions.

Reporting Sexual Harassment: If a student discusses or discloses an instance of sexual assault, sex discrimination, sexual harassment, dating violence, domestic violence or stalking, or if a faculty member otherwise observes or becomes aware of such an allegation, the faculty member will keep the information as private as possible, but as a faculty member of Washington University, they are required to immediately report it to the Department Chair or Dean or directly to Ms. Jessica Kennedy, the University's Title IX Director, at (314) 935-3118, jwkennedy@wustl.edu. Additionally, you can report incidents or complaints to the Office of Student Conduct and Community Standards or by contacting WUPD at (314) 935-5555 or your local law enforcement agency.

Confidential Resources for Instances of Sexual Assault, Sex Discrimination, Sexual Harassment, Dating Violence, Domestic Violence, or Stalking: If a student needs to explore options for medical care, protections, or reporting, there are free, confidential support resources and professional counseling services available through the Relationship and Sexual Violence Prevention (RSVP) Center in Seigle Hall, Suite 435, rsvp-center@wustl.edu, 314-935-3445. For after-hours emergency response services, call 314-935-6666 or 314-935-5555 and ask to speak with an RSVP Counselor on call.

Sexual Assault Accommodations: The University is committed to offering reasonable academic accommodations (e.g., a no-contact order, course changes) to students who are victims of relationship or sexual violence, regardless of whether they seek criminal or disciplinary action. If you need to request such accommodations, please contact RSVP (information above) to schedule an appointment with an RSVP confidential and licensed counselor. Although information shared with counselors is confidential, requests for accommodations will be coordinated with the appropriate University administrators and faculty.

Bias Reporting: The University has a process through which students, faculty, staff, and community members who have experienced or witnessed incidents of bias, prejudice, or discrimination against a student can report their experiences to the University's Bias Report and Support System (BRSS) team. See: brss.wustl.edu.

Mental Health: Mental Health Services' professional staff members work with students to resolve personal and interpersonal difficulties, many of which can affect a student's academic experience. These include conflicts with or worry about friends or family, concerns about eating or drinking patterns, and feelings of anxiety, depression, and thoughts of suicide. See: <https://students.wustl.edu/mental-health-services/>. Additionally, see the mental health services offered through the RSVP Center listed above.

WashU Cares: WashU Cares, within the Health and Wellness Unit, provides resources to all students on the Danforth Campus who may be having a hard time. WashU Cares is committed to helping create a culture of caring. Through proactive, collaborative, and systemic approaches, WashU Cares works with students to identify interventions, resources, and supports that allow them to be successful. If there is a concern about the physical or mental well-being of a student, please file a report on the WashU Cares website. See: <https://washucares.wustl.edu/>.

Center for Diversity and Inclusion (CDI): The Center for Diversity and Inclusion (CDI) supports and advocates for undergraduate, graduate, and professional school students from underrepresented and/or marginalized populations, collaborates with campus and community partners, and promotes dialogue and social change to cultivate and foster a supportive campus climate for students of all backgrounds, cultures, and identities. See: <https://diversityinclusion.wustl.edu/>.