Math 1520

Calculus II- section 02
recitation section 201

Instructor Info

Dr. Dorsa Ghoreishi

Office Hrs: Mon 2-3, Wed 1-2, Fri 11-noon

Ritter Hall 203

Through Canvas

Course Info

MWF

10-10:50 AM

Ritter Hall 242

Recitation Class

Tuesdays

10:00-10:50 AM

Ritter Hall 204

TA Info

Jae Hyeong Lee

Office Hrs: TBA

jaehyeong.lee@slu.edu

Course Description

The focus of Math 1520 is on symbolic and numerical techniques of integration, indeterminate forms, infinite series, power series, Taylor series and differential equations including polar coordinates and applications.

Text Book: Hughes-Hallett, D., Gleason, A. M., McCallum, W. G. (2021). Calculus: Single and Multivariable (8th Edition). Wiley Global Education US.

You are required to have some form of the textbook (traditional, spiral bound, e-book, etc.), but which one is entirely up to you. If you have questions about this, just email me through Canvas. Check your email for instructions on how to get onto the publisher's website

Prerequisite: A grade of C- or better in Math 1510.

Calculator: A graphing calculator is recommended but may not be allowed for all assignments, quizzes, and tests.

1. The TI-84 being the calculator of choice if you decide to buy a calculator. Some people prefer a hand-held calculator.
2. Desmos is recommended. This is a free app you can download on your computer and on your phone.

PDF creator: Genius Scan will create pdf files including multipage ones. It is a free app on the phone. If you happen to have access to a copier that creates PDF files, then that works as well. Notice that you will always need to upload your documents as a single PDF. Check out the following link for more info: Genius Scan

Grading Scheme

5%	**Worksheets/ Attendance**
8%	**Reading Assignments**
10%	**Homework**
12%	**Quizzes**
45%	**Exams (15% each)**
20%	**Final**

Grade cutoffs can change depending on the class average. Most likely we will have: A: 100-92, A-: 92-90, B+: 90-88, B: 88-82, B-: 82-80, C+: 80-78, C: 78-72, C-: 72-70, D: 70-60, F: 60-0

Quizzes

Quizzes will be given throughout the semester either in recitation classes or take home. **No make up quizzes** will be given in this class. By the end of the semester, 1 or 2 lowest quiz scores will be dropped depending on the number of quizzes given through the semester.

Assignments

There will be three kinds of assignments in this class:

Canvas Reading assignments: This assignment is due at the beginning of each session which will include the active introduction to the topic that will be covered in class. The primary goal of this assignment is to provide you with first-hand experience of exploration and investigation of the notion before learning about it in class.

Homework assignments: This assignment includes problems from each section and are generally routine computations you need to practice to become comfortable with the course material. You submit answers to these problems on canvas and receive immediate feedback. There will be videos and similar questions to help you with the assignment.

Worksheets: Worksheet assignments will consist of more involved problems. You will work in small groups on problems chosen to reinforce recently learned material. This is a part of active learning experience which provides the opportunity for immediate help while simultaneously fostering student-student and student-instructor interaction. You need to write an individual solutions based on the group's work on the worksheet done during the class meeting or recitation sessions, and submit your work at the end of class.

• **General note:** All submitted assignments should be complete, neat and easy to follow. You will not get credit for unjustified or incomplete work. You are going to be evaluated not only on your knowledge of facts beyond the surface level, but also on your creative and critical thinking, your ability to draw conclusions and make connections, and to communicate information in a reasoned and organized way.

Exams

There will be three fifty-minute midterm exams and a one-hour, fifty-minute final exam. The announcement about the material of each exam will be posted a week prior to the exam date. The tentative time of each exam is:

- **Exam 1:** Friday, September 23
- **Exam 2:** Friday, October 14
- **Exam 3:** Monday, November 21
- **Final Exam:** Friday, December 15, 12:00-1:50 pm

Office Hours

The office hours will be held both in-person and virtually this semester. Check the most updated office hours schedule on Canvas. Contact me for virtual appointments.

Communication

If you have any questions or concerns you can send me an **email through Canvas**. Before sending an email, make sure you check the announcements, syllabus and discussion board on Canvas. If you send an email and don't receive a response within 24 hours, please email me again letting me know you are awaiting a response. I will not answer emails after 7 pm on weekdays. During the weekend responses may be a bit slower. Students are expected to respond to my emails within the same time frame.

Another way to communication would be through the **discussion board on Canvas**. This is a good way to connect with your other classmates, recitation instructor and me. You can also answer any questions on the discussion board and that counts as a part of your participation in class.

If you have questions regarding your homework or if you need an extension on the assignments, make sure you contact me at least a day before the due date. Once the due date is over, no extension will be given.

Make-up Policy

In the event that an exam or assignment is missed for a valid reason, the student should contact me as soon as possible to document the problem. **I give makeup exams only for severe and documented reasons.**

Student Success

The best source of help is coming to the office hours either in person or over zoom. Other than office hours, the department of mathematics and statistics provides tutoring for this class. Help sessions are staffed by mathematics graduate students. This semester the Help Sessions are mornings, afternoons, and evenings and are online drop-in hours. You can find the schedule at **academic support center**. In recognition that people learn in a variety of ways and that learning is influenced by multiple factors (e.g., prior experience, study skills, learning disability), resources to support student success are available on campus. The Student Success Center assists students with academic-related services and is located in the Busch Student Center (Suite, 331). Students can visit student success center to learn more about tutoring services, university writing services, disability services, and academic coaching.

Drops/Withdrawals

You are responsible to follow the class schedule and learn about the deadlines in case you need to drop or withdraw form the course. Feel free to contact me if you have any questions regarding this during the semester.

Diversity in the Classroom

It is the responsibility of the instructor and the student to foster and maintain a harmonious, non-threatening and non-discriminating environment in the classroom. Although students are encouraged to express their ideas freely, an instructor must be vigilant against any inflammatory and demeaning statements or arguments (in classrooms) that may promote hate toward people, beliefs, and ideals.

Preferred Name/Pronoun

I will gladly honor your request to address you by an alternate name or gender pronoun. Please advise me of this preference early in the semester (or even before the start of the semester by emailing me) so that I may make appropriate changes to my records.

Student Learning Outcome

The student learning outcomes (SLOs) determine the structure of the course. The outcomes can be divided by chapter and will determine what questions you will see on the exams.

SLOs for Chapter 7 – Integration Students will be able to find integrals by:

- Using the method of substitution Integration by parts
- Using a table of integrals
- Using partial fractions
- Using trigonometric substitutions
- Using numerical methods
- Determine when Improper integrals are finite or infinite
- Make comparisons for improper integrals

SLOs for Chapter 8 – Using the definite Integral Students will be able to:

- Find area using techniques of integration
- Find volume using techniques of integration
- Find area in polar coordinates
- Find arc length in polar coordinates
- Find the center of mass
- Compute work (physics)
- Work integration problems involving distribution functions
- Work integration problems involving statistics

SLOs for Chapter 9 – Sequences and Series Students will be able to:

- Determine if a sequence converges
- Find the sum of a geometric series
- Determine if a series converges using the appropriate convergence test
- Limit comparison test
- Comparison Test
- Divergence Test
- Ratio Test
- Alternating Series Test
- Find the interval of convergence

SLOs for Chapter 10 – Approximating Functions using Series Students will be able to:

- Find the Taylor series for a function
- Determine the error introduced by the polynomial approximation
- Determine the radius of convergence for the Taylor polynomial
- Find the Fourier Series for a function

SLOs for Chapter 11 – Differential Equations Students will be able to:

- Recognize first and second order differential equations
- Find solutions using slope fields
- Compute points on the solution curve using Euler's Method
- Find solutions suing separation of variables
- Solve growth and decay problems
- Apply techniques from differential equations to real world problems
- Solve problems that are given by a logistic model.

Attendance

Attendance is important for success in this course and students are encouraged to attend all classes and regularly participate in the class discussions. It is student's responsibility to catch up with class material and complete the missed assignments if they miss the any session. Authorized absences are defined by the University:

1. Students who exhibit any potential COVID symptoms (those that cannot be attributed to some other medical condition the students are known to have, such as allergies, asthma, etc.) shall absent themselves from any in-person class attendance or in-person participation in any class-related activity until they have been evaluated by a qualified medical official. Students should contact the University Student Health Center for immediate assistance.
2. Students who exhibit any potential COVID symptoms (those that cannot be attributed to some other medical condition the students are known to have, such as allergies, asthma, etc.) but who feel well enough to a) attend the course synchronously in an online class session or b) participate in asynchronous online class activities, are expected to do so. Those who do not feel well enough to do so should absent themselves accordingly.
3. Students (whether exhibiting any of potential COVID symptoms or not, and regardless of how they feel) who are under either an isolation or quarantine directive issued by a qualified health official must absent themselves from all in-person course activity per the stipulations of the isolation or quarantine directive. They are expected to participate in synchronous or asynchronous online class activities as they feel able to do so, or absent themselves accordingly.
4. Students are responsible for notifying each instructor of an absence as far in advance as possible; when advance notification is not possible, students are responsible to inform the instructor as soon after the absence as possible.

Academic Integrity

At Saint Louis University:

Academic integrity is honest, truthful and responsible conduct in all academic endeavors. The mission of Saint Louis University is "the pursuit of truth for the greater glory of God and for the service of humanity." Accordingly, all acts of falsehood demean and compromise the corporate endeavors of teaching, research, health care, and community service via which SLU embodies its mission. The University strives to prepare students for lives of personal and professional integrity, and therefore regards all breaches of academic integrity as matters of serious concern.

This course will follow the *College of Arts and Sciences Academic Honesty Policy*.

All SLU students are expected to know and abide by these policies, which detail definitions of violations, processes for reporting violations, sanctions, and appeals. Please direct questions about any facet of academic integrity to your faculty, the chair of the department of your academic program, or the Dean/Director of the College, School or Center in which your program is housed.

For This Course:
All work that you hand in should be your own. Ask your instructor if you are uncertain what resources you are allowed for any particular assignment.

On exams, you are always allowed to ask your instructor for help. Using the internet or communicating with others to obtain help or is not allowed. Using computational tools not explicitly allowed on the exam instructions is cheating. In cases when two or more students collaborate on an exam, all will be subject to penalties.

Exams in this class include an honesty pledge that you will be asked to sign and submit: "The work I have submitted represents my own effort and does not make use of any resources prohibited by the instructor, including communication in any form with individuals other than the instructor."

For homework, you may discuss with classmates but the final submitted work must be your own.

Cheating on work in this class will be reported to the Dean of the College of Arts Sciences and will result in potential penalties which may include a lowered grade, failure of the course, or sanctions at the university level.

Mandatory Statement on Face Masks

Throughout the COVID-19 pandemic, key safeguards like face masks have allowed SLU to safely maintain in-person learning. If public health conditions and local, state, and federal restrictions demand it, the University may require that all members of our campus community wear face masks indoors.

Therefore, any time a University-level face mask requirement is in effect, face masks will be required in this class. This expectation will apply to all students and instructors, unless a medical condition warrants an exemption from the face mask requirement (see below).

When a University-wide face mask requirement is in effect, the following will apply:

- Students who attempt to enter a classroom without wearing masks will be asked by the instructor to put on their masks prior to entry. Students who remove their masks during a class session will be asked by the instructor to resume wearing their masks.
- Students and instructors may remove their masks briefly to take a sip of water but should replace masks immediately. The consumption of food will not be permitted.
- Students who do not comply with the expectation that they wear a mask in accordance with the University-wide face mask requirement may be subject to disciplinary actions per the rules, regulations, and policies of Saint Louis University, including but not limited to those outlined in the Student Handbook. Non-compliance with this policy may result in disciplinary action, up to and including any of the following:
  - dismissal from the course(s)
  - removal from campus housing (if applicable)
  - dismissal from the University
- To immediately protect the health and well-being of all students, instructors, and staff, instructors reserve the right to cancel or terminate any class session at which any student fails to comply with a University-wide face mask requirement.

When a University-wide face mask requirement is not in effect, students and instructors may choose to wear a face mask or not, as they prefer for their own individual comfort level.

ADA Accommodations for Face Mask Requirements Saint Louis University is committed to maintaining an inclusive and accessible environment. Individuals who are unable to wear a face mask due to medical reasons should contact the Office of Disability Services (students) or Human Resources (instructors) to initiate the accommodation process identified in the University's ADA Policy. Inquiries or concerns may also be directed to the Office of Institutional Equity and Diversity. Notification to instructors of SLU-approved ADA accommodations should be made in writing prior to the first class session in any term (or as soon thereafter as possible).

Students are strongly encouraged to identify to their instructor any student or instructor not in compliance. Non-compliance may be anonymously reported via the SLU Integrity Hotline at 1-877-525-5669 (or confidentially via the Integrity Hotline's website at http://www.lighthouse-services.com/slu.

Disability Accommodations

Students with a documented disability who wish to request academic accommodations must formally register their disability with the University. Once successfully registered, students also must notify their course instructor that they wish to use their approved accommodations in the course. Please contact Disability Services to schedule an appointment to discuss accommodation requests and eligibility requirements. Most students on the St. Louis campus will contact Disability Services, located in the Student Success Center and available by email at Disabilityservices@slu.edu or by phone at 314.977.3484. Once approved, information about a student's eligibility for academic accommodations will be shared with course instructors by email from Disability Services and within the instructor's official course roster. Students who do not have a documented disability but who think they may have one also are encouraged to contact to Disability Services. Confidentiality will be observed in all inquiries.
Note: due to accreditation requirements, regulatory differences, and/or location-specific resources, the School of Law, the School of Medicine, and SLU Madrid have their own standard language for syllabus statements related to disability accommodations. Faculty in those units should seek guidance for syllabus requirements from their dean's office.

Title IX

Saint Louis University and its faculty are committed to supporting our students and seeking an environment that is free of bias, discrimination, and harassment. If you have encountered any form of sexual harassment, including sexual assault, stalking, domestic or dating violence, we encourage you to report this to the University. If you speak with a faculty member about an incident that involves a Title IX matter, that faculty member must notify SLU's Title IX Coordinator and share the basic facts of your experience. This is true even if you ask the faculty member not to disclose the incident. The Title IX Coordinator will then be available to assist you in understanding all of your options and in connecting you with all possible resources on and off campus. Anna Kratky is the Title IX Coordinator at Saint Louis University (DuBourg Hall, room 36; anna.kratky@slu.edu; 314-977-3886). If you wish to speak with a confidential source, you may contact the counselors at the University Counseling Center at 314-977-TALK or make an anonymous report through SLU's Integrity Hotline by calling 1-877-525-5669 or online at https://www.lighthouse-services.com/StandardCustomURL/LHILandingPage.asp. To view SLU's policies, and for resources, please visit the following web addresses: https://www.slu.edu/here4you and https://www.slu.edu/general-counsel.
IMPORTANT UPDATE: SLU's Title IX Policy (formerly called the Sexual Misconduct Policy) has been significantly revised to adhere to a new federal law governing Title IX that was released on May 6, 2020. Please take a moment to review the new policy and information on the following web address: https://www.slu.edu/here4you. Please contact the Anna Kratky, the Title IX Coordinator, with any questions or concerns. Note: due to accreditation requirements, regulatory differences, and/or location-specific resources, the School of Law, the School of Medicine, and SLU Madrid have their own standard language for syllabus statements related to Title IX. Faculty in those units should seek guidance for syllabus requirements from their dean's office.

Core course SLO:

Ways of Thinking: Quantitative Reasoning

This course is part of the Saint Louis University Core, an integrated intellectual experience completed by all baccalaureate students, regardless of major, program, college, school or campus. The Core offers all SLU students the same unified approach to Jesuit education guided by SLU's institutional mission and identity and our nine undergraduate Core Student Learning Outcomes (SLOs). Ways of Thinking: Quantitative Reasoning is one of 19 Core Components. The University Core SLO(s) that this component is designed to intentionally advance are listed below:

University Core Student Learning Outcomes: The Core SLO(s) that this component is intentionally designed to advance are:

- SLO 2: Integrate knowledge from multiple disciplines to address complex questions
- SLO 3: Assess evidence and draw reasoned conclusions
- SLO 4: Communicate effectively in writing, speech, and visual media

Additionally, the Core Component-level Student Learning Outcomes are listed below:

Component-level Student Learning Outcomes: Students who complete this course will be able to:

- Demonstrate a breadth and depth of mathematical and/or statistical skills needed to analyze and build quantitative models.
- Recognize and understand patterns and arguments found in mathematics and/or statistics
- Recognize the pervasiveness and myriad forms of mathematics and/or statistics which have aided in human and humane progress
- Communicate effectively in mathematical and/or statistical ways by forming arguments and conveying results obtained through the application of quantitative tools

Tentative Schedule Fall 2022:

Monday	Wednesday	Friday
Aug 22nd **1**	24th **2** *First Day of Classes*	26th **3** 7.1 Integration by substitution
29th **4** 7.2 Integration by parts	31st **5** 7.2 Integration by parts	Sep 2nd **6** 7.3 Tables of integrals 7.4 Algebraic identities and trig substitutions
5th **7** *No Class* *Labor Day*	7th **8** 7.4 Algebraic identities and trig substitutions	9th **9** 7.5 Numerical methods for definite integrals
12th **10** 7.6 Improper integrals	14th **11** 7.6 Improper integrals	16th **12** 7.7 Comparison of improper integrals
19th **13** 7.7 Comparison of improper integrals	21st **14** 8.1 Areas and volumes	23rd **15** **Exam # 1**
26th **16** 8.1 Areas and volumes	28th **17** *No Class*	30th **18** 8.3 Area and arc length in polar coordinates
Oct 3rd **19** 8.4 Density and center of mass	5th **20** 8.7 Distribution functions	7th **21** 8.8 Probability, mean, and median
10th **22** 8.8 Probability, mean, and median	12th **23** 9.1 Sequences	14th **24** **Exam #2**

Monday	Wednesday	Friday
17th **25** 9.1 Sequences	19th **26** 9.2 Geometric series	21st **27** 9.3 Convergence of series
24th **28** 9.3 Convergence of series	26th **29** 9.4 Tests for convergence	28th **30** *No Class* *Fall Break*
31st **31** 9.5 Power series and interval of convergence	Nov 2nd **32** 10.1 Taylor polynomials	4th **33** 10.2 Taylor series
7th **34** 10.2 Taylor series	9th **35** 10.3 Finding and using Taylor series	11th **36** 10.4 The error in Taylor polynomial approximations
14th **37** 10.5 Fourier series	16th **38** Review	18th **39** 11.1 What is a differential equation?
21st **40** **Exam #3**	23rd **41** *No Class* *Thanksgiving*	25th **42** *No Class* *Thanksgiving*
28th **43** 11.2 Slope fields	30th **44** 11.3 Euler's method	Dec 2nd **45** 11.4 Separation of variables
5th **46** 11.5 Growth and decay	7th **47** Review	9th **48** *Last Day of Class*
12th **49** *Final Exams*	14th **50** *Final Exams*	16th **51** *Final Exams*