Course Syllabus

Course Syllabus for Math 152 – Spring 2025 sections 1-3 and 7-9

Course Number and Name: 01:640:152- Calculus II for the Mathematical and Physical Sciences

Canvas sites: **01:640:152:01,02,03,07,08,09 CALC II FOR MATH (https://rutgers.instructure.com/courses/330914)** and **2025SP - MATH 152 (All Sections) (https://rutgers.instructure.com/courses/348077)**

Course Web Site: **https://www.math.rutgers.edu/academics/undergraduate/courses/942-01-640-152-calculus-ii-for-the-mathematical-and-physical-sciences (https://www.math.rutgers.edu/academics/undergraduate/courses/942-01-640-152-calculus-ii-for-the-mathematical-and-physical-sciences)**

Official List of Homework Problems: **(https://rutgers.instructure.com/courses/208017/pages/topic-outline-and-required-homework-problems-fall-2022) https://rutgers.instructure.com/courses/348077/pages/topic-outline-and-required-homework-problems-spring-2025 (https://rutgers.instructure.com/courses/348077/pages/topic-outline-and-required-homework-problems-spring-2025)** (See the 2025SP Math 152 (All Sections) Canvas site.)

Lecturer Name, E-Mail and Office Hours:

- Name: Peter Ullman
- E-mail: **pmu2@math.rutgers.edu (mailto:pmu2@math.rutgers.edu)**
- Office Hours: Monday/Wednesday 12:15-1:35 (Hill Center Room 246)

Recitation Instructor Name, E-Mail and Office Hours:

- *Section 1-3:*
  - Name: Mariana Queiroz Velter
  - E-mail: **mq155@math.rutgers.edu (mailto:mq155@math.rutgers.edu)**
  - Office Hours: Tuesdays, 2pm - 3:30 pm, LSH-B Room 102D
- *Section 7-9:*
  - Name: Peter Ullman (see above for e-mail and office hours)

ures: Times and locations are:

- Section 1-3: Monday/Wednesday 2:00-3:20pm, Hill Center room 116
- Section 7-9: Monday/Wednesday 3:50-5:10pm, Science and Engineering Resource Center room 210

Recitations:

- Section 1: Science and Engineering Resource Center room 211, 8:30-9:50am
- Section 2: Science and Engineering Resource Center room 211, 10:20-11:40am
- Section 3: Science and Engineering Resource Center room 211, 12:10-1:30pm
- Section 7: Science and Engineering Resource Center room 211, 2:00-3:20pm
- Section 8: Science and Engineering Resource Center room 211, 3:50-5:10pm
- Section 9: Science and Engineering Resource Center room 211, 5:40-7:00pm

Midterm Exams and Final Exam: There will be three midterm exams and a final exam. All exams will be in-person, pencil-and-paper exams. The midterm exams will be 80-minute exams given at your normal lecture time and location on the date shown in the table below. The final exam will be a 3-hour exam on **Thursday, May 8, from 12-3pm**, at a location to be announced later in the semester. Attendance is required at all exams.

The Exam schedule (subject to change) is below. If changes are made, they will be announced by your lecturer or by the math department. Announcements will be made either through your lecturer's course Canvas site, or through the **2025SP - MATH 152 (All Sections) (https://rutgers.instructure.com/courses/348077)** Canvas site.

Exam	Date/Time	Coverage
Midterm Exam 1	Monday, February 17 (at your usual lecture time and room)	Sections 5.3, 5.5, 5.6, 6.1 – 6.4, and 8.2
Midterm Exam 2	Wednesday, March 12 (at your usual lecture time and room)	Sections 8.3, 8.4, 8.8, and 10.1 – 10.3
Midterm Exam 3	Wednesday, April 16 (at your usual lecture time and room)	Sections 10.4–10.10

Final Exam	Thursday, May 8 12-3pm	The entire course: Sections: • 5.3, 5.5, 5.6 • 6.1 to 6.4 • 8.2–8.4 and 8.8 • 10.1–10.10 • 11.1–11.5 • complex numbers (section 18.1)

Exam Makeup Policy: Students who are unable to take an exam on the scheduled date should contact their lecturer as early as possible, and must provide justification (e.g., medical, religious, funeral, court appearance, etc.). Instructors may require appropriate verification of the reason for missing an exam (e.g., doctor's note, court summons, etc.). If absence from the exam is justified, the instructor will either schedule a makeup exam, or, if the instructor determines a makeup exam is not feasible, will use the final exam score as a basis to replace the missed exam. The final exam cannot be excused, and a student must take the final exam (or a makeup final exam); a student who does not take the final exam will fail the course, even if their average would otherwise be a passing grade.

Technology Requirements: This course has an online homework component that must be completed on a computer such as a Windows machine or a Mac. There are also assignments that require students to upload written work, which requires the capability either to take photos or scans of work on paper or to generate written work with a tablet and stylus. Please see the **recommended technology for Rutgers students** (https://it.rutgers.edu/computer-recommendations-for-rutgers-students/) for recommendations on appropriate equipment, and the **Rutgers Student Tech Guide** (https://it.rutgers.edu/technology-guide/students/) for resources available to all students. If you do not have the appropriate technology for financial reasons, please email Dean of Students **deanofstudents@echo.rutgers.edu** (mailto:deanofstudents@echo.rutgers.edu) for assistance. If you are facing other financial hardships, please visit the Office of Financial Aid at **https://financialaid.rutgers.edu/** (https://financialaid.rutgers.edu/) .

SAS Core Curriculum Learning Goals: Math 152 fulfills Core Curriculum learning goals Quantitative Information (QQ) and Mathematical or Formal Reasoning (QR):

- Goal QQ: Formulate, evaluate and communicate conclusions and inferences from quantitative information.
- Goal QR: Apply effective and efficient mathematical or other formal processes to reason and to solve problems.

Department Learning Goals: More specifically, the course sets the following learning goals for each student:

- To use integrals to solve application problems, such as volumes, surface area, and arc length.
- To use various techniques for finding antiderivatives, including integration by parts, and trigonometric substitution.
- To determine the convergence or divergence of sequences and series, using tests such as the integral tests, the n-th term test, comparison tests, the alternating series test, and the ratio and root test.
- To represent functions using their Taylor and Maclaurin polynomials and series, and to integrate and differentiate those polynomials and series.
- To solve problems using parametric equations and polar forms.
- To learn polar and exponential form of complex numbers, and applications of complex numbers.

A more detailed set of learning goals for each section of the textbook can be found **at this link** (https://www.math.rutgers.edu/images/academics/course_materials/152/Math_152_Learning_Goals_rev._Mar._2022.pdf) (https://docreader.readspeaker.com/docreader/?cid=8909&lang=en_us&url=https%3A%2F%2Fwww.math.rutgers.edu%2Fimages%2Facademics%2Fcourse_materials%2F152%2FMath_152_Learning_Goals_rev._M .

Academic Integrity: Students are expected to maintain the highest level of academic integrity. You should be familiar with the university **policy on academic integrity** (http://academicintegrity.rutgers.edu/) . Violations will be reported and enforced according to this policy. Use of external website resources such as Chegg.com or others to obtain solutions to homework assignments, quizzes, or exams is cheating and a violation of the University Academic Integrity policy. Cheating in the course may result in grade penalties, disciplinary sanctions or educational sanctions. Posting homework assignments, or exams, to external sites without the instructor's permission may be a violation of copyright and may constitute the facilitation of dishonesty, which may result in the same penalties as plain cheating. The Rutgers honor pledge will be included on all (major) assessments for you to sign: ***On my honor, I have neither received nor given any unauthorized assistance on this examination (assignment).***

Textbook: Thomas' Calculus: Early Transendentals, 15th ed., by Joel Hass, Christopher Heil, Przemyslaw Bogacki and Maurice Weir, published by W. H. Freeman & Co. ISBN: 978-0137559756 (MyLab Math access code with e-text only) or ISBN: 978-0137560103 (MyLab Math access code with prepaid text that will be shipped to you from Pearson).

Online Homework Software: MyLab Math (**https://mlm.pearson.com/northamerica/** (https://mlm.pearson.com/northamerica/))

Attendance: Students are expected to attend all classes; if you expect to miss one or two classes, please use the University absence reporting website **https://sims.rutgers.edu/ssra/** (https://sims.rutgers.edu/ssra/) to indicate the date and reason for your absence. An email is automatically sent to the instructor. Please note: make-ups for assignments are not given except in circumstances required by University policy. It is the student's responsibility to notify their instructor as soon as possible if a conflict or emergency occurs that interferes with the student taking the scheduled assignment.

Course Structure and Requirements: Students will receive a course score based on the following weighting:

Midterm Exam 1	16%		Final Exam	32%
Midterm Exam 2	16%		Online Homework	5%
Midterm Exam 3	16%		Recitation assignments and quizzes	15%
TOTAL: 100%				

Your weighted course average will be used to assign a course grade. The **Math 152 grading policy** (https://rutgers.instructure.com/courses/348077/pages/grading-policy-for-math-152) is available on the Math 152 All Sections Canvas page, and it explains how the weighted course average is used to assign each student a grade.

Lecture Participation and Pre-Lecture Assignments: At the option of the lecturer, students may be given a participation grade based on their level of participation in class discussion during lectures, or completion of pre-lecture assignments. Participation may be assessed by methods such as participation in polls during class, submission of solutions to problems given in class or prior to class, or any other appropriate method. Participation and pre-lecture assignments may be counted as one or more recitation assignment or quiz scores.

Online Homework: Students will be required to complete online homework each week. The number times online homework will be due per week will vary by instructor. The schedule of due dates is available on **MyLab Math** (https://mlm.pearson.com/northamerica/). There is homework for each required section of the textbook. The online homework grade will be the average grade on the homework assignments after the two (2) lowest grades have been dropped. Homework is accepted up to 24 hours late for 50% credit; later submissions receive no credit.

Recitations: During the recitation meeting, you will work together with 3-4 other students. The emphasis will be on problem-solving strategies and multi-step problems. This small-group work will be directed by the recitation instructor for our course. You will also be assisted by an undergraduate learning assistant. A typical recitation may consist of one or more of: a pre-class assignment, group work that requires an individual submission of a solution at the end of the recitation (or shortly afterwards), and/or a short 15-20 minute quiz. Your instructor will tell you which of these items are required for a given recitation.

Student Disability Services: Students with disabilities requesting accommodations must follow the procedures outlined at **https://ods.rutgers.edu/students/getting-registered** (https://ods.rutgers.edu/students/getting-registered). Full disability policies and procedures are at **https://ods.rutgers.edu/** (https://ods.rutgers.edu/).

Availability of Learning Center Study Groups: Weekly study groups will be available through the Learning Centers. Study group leaders review course material and integrate study strategies and math reasoning skills into the small group activities. These groups are non-credit and meet weekly. Registration is required. For more information about study groups and to find the registration page, visit **https://rlc.rutgers.edu/study-groups** (https://rlc.rutgers.edu/study-groups). Questions about study groups can be directed to the Learning Assistant Program at **learningassistants@echo.rutgers.edu** (mailto:learningassistants@echo.rutgers.edu).

Topic Schedule: A list of class meetings and topics is given in the table below. The table provides a tentative schedule. The instructor may make minor changes in topic order and/or review days.

Lecture	Sections	Topics
1	5.5, 5.6, (and avg. value in 5.3)	Review of basic integration formulas, u-substitution, area under curves, even/odd symmetry, average value
2	6.1	Volume by cross-sections (including disk/washer method)
3	6.2	Volume by shells; other applications
4	6.3	Arc length and surface area
5	6.4	Arc length and surface area
6	8.2	Integration by Parts
7	8.3	Trigonometric integrals
8	**Midterm Exam 1: Sections 5.3, 5.5, 5.6, 6.1 – 6.4, and 8.2 (approximate date and section coverage; your lecturer will tell you the actual date and topic coverage)**	

9	8.4	Trigonometric substitution
10	8.8	Improper Integrals
11	10.1	Sequences
12	10.2	Infinite series
13	10.3	The Integral Test
14	10.4	Comparison tests
15	**Midterm Exam 2: Sections 8.3, 8.4, 8.8, and 10.1 – 10.3 (approximate date and section coverage; your lecturer will tell you the actual date and topic coverage)**	
16	10.5	Ratio/Root tests and absolute convergence
17	10.6	Alternating series and conditional convergence
18	10.7	Power series
19	10.8	Taylor and Maclaurin series
20	10.9	Forming new Taylor series with substitution and power series operations; error bounds
21	10.10	Applications of Taylor series
22	11.1, 11.2	Parametrizations of plane curves; Calculus with parametric curves
23	**Midterm Exam 3: Sections 10.4 – 10.10 (approximate date and section coverage; your lecturer will tell you the actual date and topic coverage)**	
24	11.3,11.4	Polar coordinates; graphing polar equations
25	11.5	Areas and lengths in polar coordinates
26	18.1	Complex numbers
27	18.1	Complex numbers
28		Catch up and review
Thursday May 8, 12:00-3:00pm: Final Exam — covers *entire* course (the material from all three midterms, *plus* the material covered after the last midterm)		

Student-Wellness Services:

- **Counseling, ADAP & Psychiatric Services (CAPS): (848) 932-7884 / 17 Senior Street, New Brunswick, NJ 08901/ http://health.rutgers.edu/medical-counseling-services/counseling/ (http://health.rutgers.edu/medical-counseling-services/counseling/)** . CAPS is a University mental health support service that includes counseling, alcohol and other drug assistance, and psychiatric services staffed by a team of professionals within Rutgers Health services to support students' efforts to succeed at Rutgers University. CAPS offers a variety of services that include: individual therapy, group therapy and workshops, crisis intervention, referral to specialists in the community, and consultation and collaboration with campus partners.
- **Crisis Intervention : http://health.rutgers.edu/medical-counseling-services/counseling/crisis-intervention/ (http://health.rutgers.edu/medical-counseling-services/counseling/crisis-intervention/)**
- **Report a Concern: http://health.rutgers.edu/do-something-to-help/ (http://health.rutgers.edu/do-something-to-help/)**

- **Violence Prevention & Victim Assistance (VPVA): (848) 932-1181 / 3 Bartlett Street, New Brunswick, NJ 08901 / vpva.rutgers.edu/ (https://vpva.rutgers.edu/)** . The Office for Violence Prevention and Victim Assistance provides confidential crisis intervention, counseling and advocacy for victims of sexual and relationship violence and stalking to students, staff and faculty. To reach staff during office hours when the university is open or to reach an advocate after hours, call 848-932-1181.
- **Disability Services: (848) 445-6800 / Lucy Stone Hall, Suite A145, Livingston Campus, 54 Joyce Kilmer Avenue, Piscataway, NJ 08854 / https://ods.rutgers.edu/ (https://ods.rutgers.edu/)** . Rutgers University welcomes students with disabilities into all of the University's educational programs. In order to receive consideration for reasonable accommodations, a student with a disability must contact the appropriate disability services office at the campus where you are officially enrolled, participate in an intake interview, and provide documentation: **https://ods.rutgers.edu/students/documentation-guidelines (https://ods.rutgers.edu/students/documentation-guidelines)** . If the documentation supports your request for reasonable accommodations, your campus's disability services office will provide you with a Letter of Accommodations. Please share this letter with your instructors and discuss the accommodations with them as early in your courses as possible. To begin this process, please complete the Registration form on the ODS web site at: **https://ods.rutgers.edu/students/registration-form. (https://webapps.rutgers.edu/student-ods/forms/registration)**

Course Summary:

Date	Details	Due
Thu Jan 23, 2025	Quiz 1 - There is no Quiz 1 (https://rutgers.instructure.com/courses/330914/assignments/3592903)	due by 11:59pm
Wed Jan 29, 2025	Section 5.3, and part 2 of 5.4: Average value and symmetry (https://rutgers.instructure.com/courses/330914/assignments/3576893)	due by 11:59pm
	Section 5.5 (with Part I of sec. 5.6): u-substitution (https://rutgers.instructure.com/courses/330914/assignments/3576890)	due by 11:59pm
	Section 5.6 Part II Area Between Curves (https://rutgers.instructure.com/courses/330914/assignments/3576889)	due by 11:59pm
Thu Jan 30, 2025	Quiz 2 (https://rutgers.instructure.com/courses/330914/assignments/3592906)	due by 11:59pm
Sun Feb 2, 2025	Section 6.1 Volume by Cross-Sections (including Disk/Washer Method) (https://rutgers.instructure.com/courses/330914/assignments/3576892)	due by 11:59pm
Thu Feb 6, 2025	Quiz 3 - There is no Quiz 3 (https://rutgers.instructure.com/courses/330914/assignments/3609638)	due by 11:59pm
Sun Feb 9, 2025	Section 6.2 Volumes Using Cylindrical Shells (https://rutgers.instructure.com/courses/330914/assignments/3576903)	due by 11:59pm
	Section 6.3 Arc Length (https://rutgers.instructure.com/courses/330914/assignments/3576906)	due by 11:59pm
Tue Feb 11, 2025	Section 6.4 Areas of Surfaces of Revolution (https://rutgers.instructure.com/courses/330914/assignments/3576908)	due by 11:59pm
Thu Feb 13, 2025	Quiz 4 (https://rutgers.instructure.com/courses/330914/assignments/3609639)	due by 11:59pm
Fri Feb 14, 2025	Section 8.2 Integration by Parts (https://rutgers.instructure.com/courses/330914/assignments/3576915)	due by 11:59pm
Tue Feb 18, 2025	Section 8.3 Trigonometric Integrals (https://rutgers.instructure.com/courses/330914/assignments/3576913)	due by 11:59pm
Thu Feb 20, 2025	Quiz 5 (https://rutgers.instructure.com/courses/330914/assignments/3620840)	due by 11:59pm

Date	Details	Due
Wed Feb 26, 2025	Section 8.4 Trigonometric Substitution (https://rutgers.instructure.com/courses/330914/assignments/3576914)	due by 11:59pm
Thu Feb 27, 2025	Quiz 6 (https://rutgers.instructure.com/courses/330914/assignments/3626400)	due by 11:59pm
	Recitation 6 s1-3 (https://rutgers.instructure.com/courses/330914/assignments/3630162)	due by 11:59pm
Sun Mar 2, 2025	Section 8.8 Improper Integrals (https://rutgers.instructure.com/courses/330914/assignments/3576891)	due by 11:59pm
Thu Mar 6, 2025	Quiz 7 (https://rutgers.instructure.com/courses/330914/assignments/3640002)	due by 11:59pm
Sun Mar 9, 2025	Section 10.1 Sequences (https://rutgers.instructure.com/courses/330914/assignments/3576912)	due by 11:59pm
	Section 10.2 Infinite Series (https://rutgers.instructure.com/courses/330914/assignments/3576905)	due by 11:59pm
	Section 10.3 The Integral Test (https://rutgers.instructure.com/courses/330914/assignments/3576900)	due by 11:59pm
Thu Mar 13, 2025	Quizlet 8 (https://rutgers.instructure.com/courses/330914/assignments/3640003)	due by 11:59pm
Tue Mar 25, 2025	Section 10.4 Comparison Tests (https://rutgers.instructure.com/courses/330914/assignments/3576896)	due by 11:59pm
Thu Mar 27, 2025	Quiz 9 (https://rutgers.instructure.com/courses/330914/assignments/3645706)	due by 11:59pm
Sun Mar 30, 2025	Section 10.5 Absolute Convergence and the Ratio and Root Tests (https://rutgers.instructure.com/courses/330914/assignments/3576904)	due by 11:59pm
Tue Apr 1, 2025	Section 10.6 Alternating Series and Conditional Convergence (https://rutgers.instructure.com/courses/330914/assignments/3576907)	due by 11:59pm
Thu Apr 3, 2025	Quiz 10 (https://rutgers.instructure.com/courses/330914/assignments/3652659)	due by 11:59pm
Sun Apr 6, 2025	Section 10.7 Power Series (https://rutgers.instructure.com/courses/330914/assignments/3576916)	due by 11:59pm
Tue Apr 8, 2025	Section 10.8 Taylor and Maclaurin Series (https://rutgers.instructure.com/courses/330914/assignments/3576897)	due by 11:59pm
Thu Apr 10, 2025	Quiz 11 (https://rutgers.instructure.com/courses/330914/assignments/3665453)	due by 11:59pm
Sun Apr 13, 2025	Section 10.10 Applications of Taylor Series (https://rutgers.instructure.com/courses/330914/assignments/3576899)	due by 11:59pm
	Section 10.9 Using substitution and power series operations to find Taylor series (https://rutgers.instructure.com/courses/330914/assignments/3576898)	due by 11:59pm
Fri Apr 18, 2025	Quizlet 12 (https://rutgers.instructure.com/courses/330914/assignments/3665710)	due by 11:59pm

Date	Details	Due
Tue Apr 22, 2025	Section 11.1 Parameterization of Plane Curves (https://rutgers.instructure.com/courses/330914/assignments/3576911)	due by 11:59pm
Thu Apr 24, 2025	Quizlet 13 (https://rutgers.instructure.com/courses/330914/assignments/3672718)	due by 11:59pm
Sun Apr 27, 2025	Section 11.2 Calculus with Parametric Curves (https://rutgers.instructure.com/courses/330914/assignments/3576901)	due by 11:59pm
	Section 11.3 Polar Coordinates (https://rutgers.instructure.com/courses/330914/assignments/3576910)	due by 11:59pm
	Section 11.4 Graphing Polar Coordinate Equations (https://rutgers.instructure.com/courses/330914/assignments/3576909)	due by 11:59pm
Thu May 1, 2025	Quiz 14 - There is no Quiz 14 (https://rutgers.instructure.com/courses/330914/assignments/3693136)	due by 11:59pm
Sun May 4, 2025	Section 11.5 Areas and Lengths in Polar Coordinates (https://rutgers.instructure.com/courses/330914/assignments/3576902)	due by 11:59pm
	Section 18.1 Complex Numbers (https://rutgers.instructure.com/courses/330914/assignments/3576894)	due by 11:59pm
	Enrolled on 1-23 (https://rutgers.instructure.com/courses/330914/assignments/3600122)	
	Enrolled on 1-30 (https://rutgers.instructure.com/courses/330914/assignments/3600123)	
	Final Exam (https://rutgers.instructure.com/courses/330914/assignments/3693135)	
	Midterm Exam 1 (https://rutgers.instructure.com/courses/330914/assignments/3622814)	
	Midterm Exam 2 (https://rutgers.instructure.com/courses/330914/assignments/3643564)	
	Midterm Exam 3 (https://rutgers.instructure.com/courses/330914/assignments/3675629)	
	Recitation 1 s7-9 (https://rutgers.instructure.com/courses/330914/assignments/3600380)	
	Recitation 10 s7-9 (https://rutgers.instructure.com/courses/330914/assignments/3693133)	
	Recitation 11 s7-9 (https://rutgers.instructure.com/courses/330914/assignments/3693131)	
	Recitation 12 s7-9 (https://rutgers.instructure.com/courses/330914/assignments/3693132)	
	Recitation 13 s7-9 (https://rutgers.instructure.com/courses/330914/assignments/3693130)	
	Recitation 14 - Nothing was due for Recitation 14 (https://rutgers.instructure.com/courses/330914/assignments/3693137)	

Date	Details	Due
	Recitation 2 s7-9 (https://rutgers.instructure.com/courses/330914/assignments/3629022)	
	Recitation 3 s7-9 (https://rutgers.instructure.com/courses/330914/assignments/3629023)	
	Recitation 4 s7-9 (https://rutgers.instructure.com/courses/330914/assignments/3629024)	
	Recitation 5 s7-9 (https://rutgers.instructure.com/courses/330914/assignments/3629025)	
	Recitation 6 s7-9 (https://rutgers.instructure.com/courses/330914/assignments/3650882)	
	Recitation 7 s7-9 (https://rutgers.instructure.com/courses/330914/assignments/3650884)	
	Recitation 8 s7-9 (https://rutgers.instructure.com/courses/330914/assignments/3693129)	
	Recitation 9 s7-9 (https://rutgers.instructure.com/courses/330914/assignments/3693134)	