



## Math 2415.01W, Calculus III

CLASS SYLLABUS: Summer II, 2022

### INSTRUCTOR INFORMATION

Instructor: Dr. Tingxiu Wang, Professor of Mathematics

Office Location: Binnion 306

Online Office Hours: MWF 11:00 AM – 12:00 PM on ZOOM

ZOOM link valid until Aug. 11, 2022:

<https://tamuc.zoom.us/j/91609899409>

Office Phone: 903-886-5958

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Email Address: [Tingxiu.wang@tamuc.edu](mailto:Tingxiu.wang@tamuc.edu) Preferred Form of Communication: **email**

Communication Response Time: usually within 24 hours during weekdays, M-F.

### COURSE INFORMATION

This is an online class conducted on D2L Brightspace. To access the course materials, log on to <https://leo.tamuc.edu>, then, click the icon, D2L Brightspace for the class website. Please visit the class website to be familiar with the class D2L. To take this class:

1. Read this class syllabus carefully. For your convenience, you may print a copy of this syllabus.
2. Print the sets of Practice Questions, which is available on D2L.
3. Watch recorded/video lectures with the Practice Questions.
4. Do a quiz that corresponds to each video lecture and Practice Questions. Submit the quiz to D2L timely.
5. Join online office hours for help.
6. Take tests and submit them to D2L timely.
7. Please read the following for details.

#### Course Materials:

- Required Technology: **A computer with a webcam and stable internet access.**
- Textbook: Calculus, 9th Edition, by James Stewart. We will study Chapters 12, 13, 14, 15 and part of 16 if time permits. We may occasionally cover enrichment activities not in the text. The 8<sup>th</sup> edition is still usable. We mainly follow its order of sections. Although it is not required, it will be helpful to have a textbook.

Course Description: This course studies advanced topics in calculus, including vectors and vector-valued functions, partial differentiation, Lagrange multipliers, multiple integrals, and Jacobians; application of the line integral, including Green's Theorem, the Divergence Theorem, and Stokes' Theorem. Prerequisites: MATH 2414, Calculus II, with a minimum grade of C.

#### Student Learning Outcomes:

- a. Perform calculus operations on vector-valued functions, including derivatives, integrals, curvature, displacement, velocity, acceleration, and torsion.
- b. Perform calculus operations on functions of several variables, including partial derivatives, directional derivatives, and multiple integrals.
- c. Find extrema and tangent planes.
- d. Solve problems using the Fundamental Theorem of Line Integrals, Green's Theorem, the Divergence Theorem,

- and Stokes' Theorem.
- e. Apply the computational and conceptual principles of calculus to the solutions of real-world problems.

## COURSE REQUIREMENTS

Evaluation is based on quizzes and tests.

Time for this course: It is said that education is an investment. In addition to the tuition, a student invests the time for education. The time for study is essential for the success of your education or investment. How much time do you need for this class? A thumb of rules in education is that you need to spend the number of hours equal to at least three times of the credit hours per week. Calculus III is a four-credit hour course. Thus, you need to spend 12 hours per week in a regular semester. A summer term has five weeks. Therefore, one week in a summer term is equivalent to three weeks in a regular semester, which means you need to spend approximately 36 hours per week in a summer term, or seven hours per day, Monday through Friday. Each day, you would need three hours to watch video lectures, and four hours for study and homework. If one has a weaker math background or rusty on the prerequisite, or wants to learn well for a better grade, more time is necessary. Some students say that this class takes much more time than other classes. This is true because this is a four-credit hour class. So, this class requires 25% more time than three-credit hour classes. In addition, this is calculus. However, an online class eliminates your commuting time. Thus, you may find it manageable and feasible to take it in a summer term.

Attendance: Online attendance is required. It is critical that you keep up with the pace of this class. A summer term has only five weeks. It goes quickly. Once you are behind our pace, you can get lost easily. You are strongly suggested to study ahead of our pace. Online attendance in this course is determined by your login and participation in our course on LMS (Learning Management System), D2L. By attendance, we mean students will watch video lectures, complete and submit take-home quizzes, and take tests.

Homework: Without practice, no one can learn. Without sufficient practice, no one can learn well. Homework practice questions listed in Appendix A are for additional practice. They will not be collected, nor graded.

Practice: We use a set of practice questions for lectures. After each video lecture, you will do similar questions of a quiz. These sets of practice questions are available on D2L. You may want to print them so that when you watch video lectures, you have a copy to use.

Quizzes: There will be 10 take-home quizzes. These quizzes mimic the practice questions. Each quiz is worth 12 points. A total of 120 points will be used to determine the course grade. Please see Appendix B for the due dates of quizzes. You will need to print a copy of a quiz, work on it on blank paper. Then, submit your quizzes to D2L, Activity, with the file name in the format: LastName-Q#. For example, John Smith submits Quiz 3. Use the file name, Smith-Q3.PDF. A late submission will have a 3-point deduction.

Tests: There will be three tests. Each test is worth of 80 points, and you have two hours to do it. Instead of using online proctoring service or a testing center, we use ZOOM to proctor tests. In this way, we save money for our students. So, you must have a webcam on your computer and internet, no excuse. When we have a test, a link to ZOOM will be provided. If you have questions, discuss it with your instructor immediately. Submit your test to D2L with the following format for your file name: LastName-T#. We will have tests at the following **tentative times. We will confirm with the class that the time works for everyone.** For a test, you should log on to ZOOM and check in at 2:45 PM. Each test will start at 3:00 PM promptly. The test will be closed at 5:00 PM, and you need to complete submitting your test by 5:15 PM. Tests will not be accepted after 5:15 PM. So, for the entire test, you need to be available from 2:45 PM to 5:15 PM.

- Test 1: 3:00 PM – 5:00 PM, Thursday, July 21
- Test 2: 3:00 PM – 5:00 PM, Monday, Aug. 1
- Test 3: 3:00 PM – 5:00 PM, Thursday, Aug. 11

Please confirm the testing time. If it does not work for you, please give a time so that we will ask the entire class.

Grading: There will be a total of 360 points for this class in terms of ten quizzes and three tests.

Quizzes	120 points
Tests	<u>240 points</u>
Total	360 points

Your course grade will be based on the percentage of the points you make to the total points available in the course: A >= 90%, B >= 80%, C >= 70% D >= 60% F < 60%.

## TECHNOLOGY REQUIREMENTS

- Required Technology: **A computer with a webcam and stable internet access.**
- TI-Nspire or other calculators with similar capability is highly recommended.
- When you submit a quiz or test, make one PDF file in terms of the order of quiz/test questions and in the portrait orientation. Make sure your PDF files are scanned clearly, or they will be invalid. Please visit the following video clips for making one PDF file:
  - Using CamScanner: <https://www.youtube.com/watch?v=sZFcQJCmtMI>
  - Android: <https://www.youtube.com/watch?v=FWIVYd2Zc-E>
  - iPhone: <https://www.youtube.com/watch?v=10XH6VfGLqI>
- D2L/LMS: All course sections offered by Texas A&M University-Commerce have a corresponding course shell in the [myLeo](#) Online Learning Management System (LMS). You will obtain the course materials through LMS. You cannot distribute the course materials without permission of the instructor. To access LMS, go to [myLeo](#), then Apps, then My Leo Online D2L Brightspace. You also have an email account via myLeo - all my emails sent from D2L (and all other university emails) will go to this account, so please be sure to check it regularly.

Below are technical requirements

- LMS Requirements: <https://community.brightspace.com/s/article/Brightspace-Platform-Requirements>
- LMS Browser Support: [https://documentation.brightspace.com/EN/brightspace/requirements/all/browser\\_support.htm](https://documentation.brightspace.com/EN/brightspace/requirements/all/browser_support.htm)
- YouSeeU Virtual Classroom Requirements: <https://support.youseeu.com/hc/en-us/articles/115007031107-Basic-System-Requirements>

## ACCESS AND NAVIGATION

You need your campus-wide ID (CWID) and password to log into the course. If you do not know your CWID or have forgotten your password, contact the Center for IT Excellence (CITE) at 903.468.6000 or [helpdesk@tamuc.edu](mailto:helpdesk@tamuc.edu).

Course readings, assignments and discussions will be completed /turned in through LMS. Your grades will be available in LMS. The course materials are only for this course. You cannot distribute the course materials without permission of the instructor

This course is presented with video lectures with practice questions. There are 10 sets of practice questions. You should begin by reading the course syllabus, paying particular attention to the Suggested Day-by-Day Schedule.

**Note:** Computer and internet connection problems do not excuse the requirement to complete all course work in a timely and satisfactory manner. Each student needs to have a backup method to deal with these inevitable problems. These methods might include the availability of a backup PC at home or work, the temporary use of a

computer at a friend's home, the local library, office service companies, Starbucks, a TAMUC campus open computer lab, etc.

## COMMUNICATION AND SUPPORT

Interaction with Instructor: You may email and telephone your instructor, and visit your instructor at LMS. I will try to respond your email within 24 hours, Monday through Thursday. My response over the weekend may have a delay.

**Math Lab:** Free tutoring service offered by the Mathematics department (Binnion Hall Room 328) with the following hours: Monday-Thursday, 10am–5pm; and Friday. 10am–2pm.

**The TAMUC One Stop Shop**- provides as many student resources as possible in one location.

<http://www.tamuc.edu/admissions/oneStopShop/>

**The TAMUC Academic Success Center** provides academic resources to help you achieve academic success.

<http://www.tamuc.edu/CampusLife/CampusServices/AcademicSuccessCenter/default.aspx>

### Technical Support

If you are having technical difficulty with any part of Brightspace, please contact Brightspace Technical Support at 1-877-325-7778. Other support options can be found here:

<https://community.brightspace.com/support/s/contactsupport>

### Syllabus Change Policy

The syllabus is a guide. Circumstances and events, such as student progress, may make it necessary for the instructor to modify the syllabus during the semester. Any changes made to the syllabus will be announced in advance.

## University Specific Procedures

### Student Conduct

- All students enrolled at the University shall follow the tenets of common decency and acceptable behavior conducive to a positive learning environment. The Code of Student Conduct is described in detail in the [Student Guidebook](http://www.tamuc.edu/Admissions/oneStopShop/undergraduateAdmissions/studentGuidebook.aspx).  
<http://www.tamuc.edu/Admissions/oneStopShop/undergraduateAdmissions/studentGuidebook.aspx>
- Students should also consult the Rules of Netiquette for more information regarding how to interact with students in an online forum: <https://www.britannica.com/topic/netiquette>

### TAMUC Attendance

- For more information about the attendance policy please visit the [Attendance](http://www.tamuc.edu/admissions/registrar/generalInformation/attendance.aspx) webpage and [Procedure 13.99.99.R0.01](http://www.tamuc.edu/admissions/registrar/generalInformation/attendance.aspx). <http://www.tamuc.edu/admissions/registrar/generalInformation/attendance.aspx>
- <http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/13students/academic/13.99.99.R0.01.pdf>

### Academic Integrity

Students at Texas A&M University-Commerce are expected to maintain high standards of integrity and honesty in all of their scholastic work. For more details and the definition of academic dishonesty see the following procedures:

<http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/13students/undergraduates/13.99.99.R0.03UndergraduateAcademicDishonesty.pdf>

[Graduate Student Academic Dishonesty 13.99.99.R0.10](http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/13students/undergraduates/13.99.99.R0.10GraduateStudentAcademicDishonesty.pdf)

<http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/13students/graduate/13.99.99.R0.10GraduateStudentAcademicDishonesty.pdf>

### **Students with Disabilities-- ADA Statement**

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you have a disability requiring an accommodation, please contact:

### **Office of Student Disability Resources and Services**

Gee Library- Room 162

Phone (903) 886-5150 or (903) 886-5835

Fax (903) 468-8148

Email: [studentdisabilityservices@tamuc.edu](mailto:studentdisabilityservices@tamuc.edu)

Website: [Office of Student Disability Resources and Services](#)

<http://www.tamuc.edu/campusLife/campusServices/studentDisabilityResourcesAndServices/>

### **Nondiscrimination Notice**

Texas A&M University-Commerce will comply in the classroom, and in online courses, with all federal and state laws prohibiting discrimination and related retaliation on the basis of race, color, religion, sex, national origin, disability, age, genetic information or veteran status. Further, an environment free from discrimination on the basis of sexual orientation, gender identity, or gender expression will be maintained.

### **Counseling Service**

The Counseling Center at A&M-Commerce, located in the Halladay Building, Room 203, offers counseling services, educational programming, and connection to community resources for students. Students have 24/7 access to the Counseling Center's crisis assessment services by calling 903-886-5145. For more information regarding Counseling Center events and confidential services, please visit [www.tamuc.edu/counsel](http://www.tamuc.edu/counsel)

### **Campus Concealed Carry Statement**

Texas Senate Bill - 11 (Government Code 411.2031, et al.) authorizes the carrying of a concealed handgun in Texas A&M University-Commerce buildings only by persons who have been issued and are in possession of a Texas License to Carry a Handgun. Qualified law enforcement officers or those who are otherwise authorized to carry a concealed handgun in the State of Texas are also permitted to do so. Pursuant to Penal Code (PC) 46.035 and A&M-Commerce Rule 34.06.02.R1, license holders may not carry a concealed handgun in restricted locations.

For a list of locations, please refer to the [Carrying Concealed Handguns On Campus](#) document and/or consult your event organizer. Web url:

<http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/34SafetyOfEmployeesAndStudents/34.06.02.R1.pdf>

Pursuant to PC 46.035, the open carrying of handguns is prohibited on all A&M-Commerce campuses. Report violations to the University Police Department at 903-886-5868 or 9-1-1.

**COPYRIGHT:** The course materials are only for use in this course. You cannot distribute the course materials without permission of the instructor.

## Appendix A: Homework Practice Questions

These are additional questions for your practice. This is based on the 8<sup>th</sup> edition:

- Section 12.1, Pages 836-837: 1, 3, 7, 9, 11, 13, 17, 21(b), 23, 25, 29  
Section 12.2, Pages 845-847: 3, 5, 7, 9, 13, 15, 17, 21, 25, 31, 33, 43  
Section 12.3, Pages 852-854: 1, 5, 7, 9, 13, 15, 19, 21, 23, 27, 29, 35, 41, 51  
Section 12.4, Pages 861-863: 3, 11, 15, 17, 19, 31; Scalar triple product 33, 35, 37, 39, 49  
Section 12.5, Pages 871-873: Planes, 23, 27, 31, 35, 37, 41, 43, 51, 53  
Lines, 3, 5, 9, 11, 13, 19, 21, 45, 47, 59  
Distance, 69, 71, 73, 79  
Section 12.6, Pages 879-881: Cylinders, 1, 3, 5, 7;  
Quadric surfaces, 11, 13, 19, 21, 23, 25, 27, 31, 33, 35, 43  
Section 13.1, Pages 893-895: Domain/Limits, 1, 3, 5, 49; Graphs, 7, 11, 13, 15, 17, 21, 23, 27, 41  
Section 31.2, Pages 900-901: 3, 7, 9, 19, 25, 27, 37, 51  
Section 13.3, Pages 908-910: 3, 5, 15, 17, 19, 21, 47, 49  
Section 13.4, Pages 918-919: 5, 7, 11, 15, 27, 39, 41  
  
Section 14.1, Pages 939-943: 2, 8, 13, 15, 17, 25, 27, 31, 43, 47, 53, 67  
Section 14.2, Pages 950-951: 7, 11, 13, 17, 21, 29, 31, 37, 39, 41  
Section 14.3, Pages 963-967: 3, 17, 21, 27, 33, 35, 41, 49, 55, 57, 67, 91  
Section 14.4, Pages 974-977: 3, 5, 7, 13, 17, 21, 25, 31, 33  
Section 14.5, Pages 983-986: 3, 5, 9, 11, 13, 15, 19, 23, 27, 33, 43, 53  
Section 14.6, Pages 996-999: 5, 9, 11, 15, 23, 25, 33, 43, 49, 55  
Section 14.7, Pages 1007-1010: 5, 9, 15, 29, 31, 33, 39, 41, 43  
Section 14.8, Pages 1017-1018: 5, 7, 11, 15, 17, 19, 43  
  
Section 15.1, Pages 1039-1040: 3, 7, 11, 15, 17, 23, 29, 33, 37  
Section 15.2, Pages 1048-1050: 5, 7, 15, 17, 25, 29, 35, 47, 49, 51, 53  
Section 15.3, Pages 1054-1056: 7, 11, 13, 15, 17, 19, 25, 29  
Section 15.4, Pages 1064-1066: 3, 7, 13, 17, 23  
Section 15.5, Pages 1068-1069: 3, 5, 7, 9  
Section 15.6, Pages 1077-1079: 5, 9, 13, 15, 17, 19, 29, 33, 39  
Section 15.7, Pages 1083-1084: 1, 3, 5, 7, 9, 17, 19, 21, 23, 29  
Section 15.8, Pages 1089-1091: 1, 3, 5, 9, 11, 17, 23, 35, 43  
Section 15.9, Pages 1100: 3, 7, 11, 13, 15, 17, 19, 23, 25  
  
Section 16.1, Pages 1113-1114: 3, 7, 11, 13, 15, 23, 25  
Section 16.2, Pages 1124-1127: 1, 3, 5, 7, 15, 19, 33, 39  
Section 16.3, Pages 1134-1135: 3, 7, 13, 15, 17, 19, 23  
More will be given. Please attend the class to find out all homework assignments.

## Appendix B: Suggested Day-by-Day Schedule

This schedule gives you an idea how much you need to learn each day. You may study ahead of this schedule, but do not fall behind because it will be difficult to catch up once you get behind. We may modify this schedule if necessary. When you watch a video lecture, you may need to pause, or repeat, so that you can really understand a lecture. The order of topics and sections are the same for both the 8<sup>th</sup> and 9<sup>th</sup> editions.

- Test 1 covers Chapters 12 and 13.
- Test 2 covers Chapter 14.
- Test 3 covers Chapter 15
- Quiz 10 is a comprehensive quiz, summary of what we learn in this summer term.

Week of	Mon.	Tues.	Wed.	Thurs.	Fri.	Remark
<b>Week 1 July 11</b>	Section 12.1(1) Section 12.1(2) Section 12.1(3) Section 12.2(1)	Section 12.2(2) Section 12.2(3) Section 12.2(4) Section 12.2(5) Section 12.3(1)	Section 12.3(2) Section 12.3(3) Section 12.3(4) Section 12.4(1) Q1 due Thurs.	Section 12.4(2) Section 12.4(3) Section 12.5(1) Section 12.5(2) Q1 due today	Section 12.5 (3) Section 12.5 (4) Section 12.5 (5) Section 12.6 (1)	-- Q 1 due by 11:59 PM, Thurs. July 14
<b>Week 2 July 18</b>	Section 12.6(2) Section 12.6(3) Section 13.1(1) Section 13.1(2) Q2 due Tues.	Section 13.1(3) Section 13.2(1) Section 13.2(2) Section 13.2(3) Q2 due today	Section 13.3(1) Section 13.3(2) Section 13.3(3) Section 13.3(4) Section 13.4 Q3 due Thurs.	Q3 due today Review for T1 Test 1 at 3PM	Section 14.1 (1) Section 14.1 (2) Section 14.2 (1)	-- Q2 due by 11:59 PM, Tues. July 19. -- Q3 due by <b>11:59 AM, Thurs.</b> July 21. -- Test 1 at 3PM, Thurs., July 21
<b>Week 3 July 25</b>	Section 14.2(2) Section 14.3(1) Section 14.3(2) Section 14.3(3) Q4 due today	Section 14.4(1) Section 14.4(2) Section 14.4(3) Section 14.4(4)	Section 14.5(1) Section 14.5(2) Section 14.6(1) Section 14.6(2) Section 14.6(3) Q5 due Thurs.	Section 14.7(1) Section 14.7(2) Section 14.7(3) Section 14.7(4) Q5 due today	Section 14.8(1) Section 14.8(2) Review for T2 Q6 due Sun.	-- Q4 due by 11:59 PM, Mon. July 25 -- Q5 due by 11:59 PM, Thurs. July 28 -- Q6 due by 11:59 PM, Sun. July 31
<b>Week 4 Aug. 1</b>	Review for T2 Test 2 at 3PM	Section 15.1(1) Section 15.1(2) Section 15.2(1) Section 15.2(2)	Section 15.2(3) Section 15.3(1) Section 15.3(2) Section 15.3(3)	Section 15.4(1) Section 15.4(2) Section 15.4(3) Section 15.5 Q7 due today	Section 15.6(1) Section 15.6(2) Section 15.6(3) Q8 due by Sun.	-- Test 2 at 3PM, Mon. Aug. 1 -- Q7 due by 11:59 PM, Thurs. Aug. 4 -- Q8 due by 11:59 PM, Sun. Aug. 7
<b>Week 5 Aug. 8</b>	Section 15.7(1) Section 15.7(2) Section 15.8(1) Section 15.8(2)	Section 15.8(3) Section 15.8(4) Section 15.9(1) Section 15.9(2)	Section 15.9(3) Section 15.9(4) Section 15.9(5) Review for T3 Q9 due today	Review for T3 Test 3 at 3PM Summer II over		-- Q9 due by 11:59 PM, Wed. Aug. 10 --Q10 due by 11:59 PM, Thurs. Aug. 11

**WELCOME TO THIS CLASS**