MAT 265   Calculus I   Spring 2020

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Office Hours: 3-4 pm, Tu. Th.	

Text: *Essential Calculus, Early Transcendentals, 2nd Edition,* by James Stewart (Cengage)
Test reviews: https://math.asu.edu/mat265

Tentative Lecture and Test Schedule

Week Of	Section	Concepts/Comments
Jan 13	1.3, 1.4	Introduction; Limits: Graphical and Numerical, One-Sided; Algebraic
Jan 20	1.5, 1.6	*No class on 1/20 (MLK day)* Continuity; Limits involving Infinity, Asymptotes
Jan 27	2.1, 2.2	Derivatives and Rates of Change; Derivative as a Function
Feb 3	2.3, 2.4	Basic Derivative Formulas – Power Rule; Product Rule, Quotient Rule
Feb 10	2.5	Chain Rule, **Test 1 Thursday 2/13**
Feb 17	2.6, 2.7	Implicit Differentiation; Related Rates
Feb 24	2.8, 3.1, 3.2	Linear Approximation, Differentials; Exponential Functions; Inverse Functions
Mar 02	3.2, 3.3	Inverse Functions and Logarithms; Derivatives of Exponential and Logarithmic Functions
Mar 09		**Spring Break**
Mar 16	3.5, 3.7	Inverse Trigonometric Functions; Indeterminate Forms and L'Hospital's Rule
Mar 23	4.1, 4.2	Maximum and Minimum Values (Extrema); Mean Value Theorem; **Test 2 Thursday 3/26**
Mar 30	4.2, 4.3, 4.4	MVT; Derivatives and the Shapes of Graphs; Curve Sketching; **Mastery Test 4/1 or 4/2**
Apr 6	4.5, 4.7	Optimization; Antiderivatives
Apr 13	5.1, 5.2	Areas and Distances; The Definite Integral
Apr 20	5.3	Evaluating Definite Integrals, **Test 3 Thursday 4/23**
Apr 27	5.4	The Fundamental Theorem of Calculus; Final exam review
Finals Week		**Final Exam: Thursday, May 7th from 7:10-9:00pm** (Canvas)

Important Dates and Points Allocations

Testing Schedule				Grade Allocations	
Test	*Covering through*	*Date*	*Location*	Tests 1-3 and Mastery*	60%
1	1.3-1.6, 2.1-2.3	2/13	Zoom	Homework	10 %
2	2.4-2.8, 3.1-3.3, 3.5, 3.7	3/26	Zoom	Final Exam	30%
3	4.1-4.5, 4.7, 5.1, 5.2	4/23	Zoom	**Total**	100%
M	Mastery of Differentiation	4/1-2	Canvas		
Final	Comprehensive, including 5.3, 5.4	5/7	Canvas		

Prerequisite: MAT 170 or 171 (pre-calculus) with C or better, OR Mathematics Placement Test with a score of 60% or higher; the Advanced Math Placement Test with a score of 38 or higher, OR ALEKS score of 76 or higher; Credit is allowed for only MAT 265 or MAT 270.

Catalog Description

Limits and continuity, differential calculus of functions of one variable, introduction to integration.

Course Overview

The purpose of the course is to gain a working understanding of differentiation, its definition, general rules and applications, as well as an introduction to antidifferentiation and integration. This begins with an understanding of limits of expressions which is needed in the definition of the derivative as well as for intuition for applications of the derivative. Integration, antiderivatives, and the fundamental theorem of calculus ends calculus I, and will be studied more in depth in calculus II.

Learning Outcomes

At the completion of this course, students should have a mastery of the following concepts to prepare him or her for calculus II:

- **Functions and Limits**
    - Approximate a limit at a point numerically with a calculator.
    - Find a limit at a point rigorously through common algebraic processes or with the squeeze theorem.
    - Continuity of a function at a point.
    - Be able to determine when a limit does not exist, including going to plus or minus infinity and find the limit at infinity

- **Derivatives**
    - Derivatives and Rates of Change.
    - Find the derivative of a function using the limit definition.
    - Compute the derivative of a function at a point using the limit definition.
    - Find the derivative of all of the basic functions.
    - Use the rules of differentiation (sum/difference, constant multiplier, product, quotient, and chain rule) to differentiate combinations of functions.
    - Find an equation of the line tangent to a curve, whether the curve is given explicitly or implicitly.
    - Related Rates and linear approximations and differentials.

- **Exponential, Logarithmic, and Inverse Trigonometric Functions**
    - Exponential, Logarithmic, Inverse Functions.
    - Derivative of Logarithmic and Exponential Functions.
    - Find the value of the derivative of the inverse of a function at a point.
    - Find the value of a limit using L'Hôpital's rule.

- **Applications of Derivatives**
    - Use the derivative to graph a function, labeling local extrema and inflection points.
    - The mean value theorem.
    - Solve optimization problems.
    - Find antiderivatives of basic functions.

- **Integrals**
    - Approximate the area or distance traveled of a function (velocity) using a small Riemann sum.
    - Evaluate definite integrals using the fundamental theorem of calculus.
    - Find antiderivatives of functions using the fundamental theorem of calculus.

Class Content, Teacher Expectations, Studying for the Class and Examinations

Textbook: *Essential Calculus, Early Transcendentals, 2ⁿᵈ Edition,* by James Stewart (Brooks/Cole).
<u>You should read each section of the textbook before it is covered in class.</u>
A used version of the textbook is fine. The new version of the textbook at the bookstore comes bundled
with WebAssign at no added cost.
Note: The materials required for this course and any others using Cengage products are included in ONE
Cengage Unlimited subscription. For $119.99 per semester, you get access to ALL Cengage online
textbooks, platforms, study tools and more—in one place. $7.99 print textbook rentals are also available.
Ask for Cengage Unlimited in the bookstore or visit cengage.com/unlimited.

Attendance is expected and your instructor may take regular attendance.

Graphing Calculator: A graphing calculator is required for this course. <u>If you already have a graphing</u>
<u>calculator, you may use it</u>. Examples of highly recommended models are the TI-*n*spire & TI 83/84 or
Casio 9850GB Plus. Calculators that do symbolic algebra, such as the Casio FX2, Casio 9970Gs,TI-89,
TI-92, or TI- *n*spire CAS **cannot** be used in class or during an exam.
The graphing calculator workshops for the TI 83, 83+, 84 family of calculators will be

> Tuesday, Jan. 21, 2020 at 6 to 8 PM in BAC 216
>
> Friday, Jan. 24, 2020 at 3 to 5 PM in LSA 191

Both workshops will be over similar material and will help you better know how to use these calculators
to solve problems in our class. Students who attend the workshop and verify their attendance by returning
their stamped flier to the instructor will get a small amount of extra credit. The flier must be returned to
the instructor by the third week of class.

Homework: There are two ways to do Homework. You can choose either of them or both.

   One is provided by assignments posted at

   http://webassign.net

   To use it you need the class/course key

   Class Name MAT 265, section 10532

   Class/Course Key: asu 4868 6998

   It also includes the textbook in an electronic format. NOTE: Homework assignments in WebAssign
expire weekly!!!

   Second is to use

   http://webwork.asu.edu

If you do both assignments from WebAssign (WA% percentage done) and WebWork (WW% percentage
done) and combined percentage WA% + WW% of your work exceeds 100%, then you will receive extra
credit .

Grading policy is posted at

http://www.public.asu.edu/~nikitin/grading/index.html

The percentage earned (PE) is calculated as

(Test_1+Test_2+Test_3+Mastery_Test+Work_in_class+1.5*Final_exam+WebAssign/2+WebWork/2)*0.2

where Test_1=Test_2=Test_3=85, Mastery_Test=45, Final_exam=WebAssign=WebWork=100.

Exams: There will be three 50 minute midterm exams given during the semester. Non CAS graphing calculators are allowed on the exams, but graphing calculators that do symbolic algebra are not allowed on the exams (see above). **Your calculator may be viewed during exams and it will be taken away if it is a CAS calculator or have its memory cleared if anything suspicious is written therein.** The Instructor has the right to regard any suspicious material in your calculator memory as cheating. **All internet-capable devices such as computers, phones and smart-watches, etc., are to be turned off and made inaccessible for the duration of an exam. Accessing one for any reason will result in an automatic score of 0 for the exam.**
Makeup exams are given at the discretion of the instructor and only in the case of verified medical or other emergency, which must be documented. The instructor must be notified before the test is given. There are no test retakes or "corrections", and no lowest test will be dropped, nor will you receive extra credit assignments to erase the consequences of a bad test.

Mastery Test (50 minutes): The mastery test assesses basic differentiation skills (including implicit differentiation) and will be administered after test 2. No calculators are allowed on the mastery test.

- If you earn 90% or higher, a grade of 100% is recorded.
- If you earn less than 90%, then 90% of the score you earn is recorded.

The mastery test is weighted toward the final grade as 50% (that is, one-half) of a midterm exam.

Math Testing Center: The Mathematics Department Testing Center is in WXLR (formerly PSA) 21 (basement). Please arrive 10 minutes early for the time slot you chose (signed up for).
- On Wednesday 4/1, there will be 5 time slots for the students to sign up for:
  10:40 am to 11:30 am, 11:50 am to 12:40 pm, 1:00pm to 1:50pm, 2:10 pm to 3:00 pm, and 3:20-4:10 pm.
- On Thursday 4/2, there will be 5 time slots for the students to sign up for:
  9:20 am to 10:10 am, 10:40 am to 11:30 am, 12:10 pm to 1:00 pm, 1:40 pm to 2:30 pm and 3:10 pm to 4:00pm
  You may leave once you finish your exam.

Bathroom Breaks during exams policy:
You are not permitted to go to the bathroom during midterm exams or the mastery test. Please use the restroom before you start your exam. If you leave during the exam, that ends your testing period. If you have a medical condition that may require you to go to the bathroom during exams, you must provide documentation to your instructor in advance.
Picture ID requirement for testing: for each exam and the mastery test attempts, you have to bring picture ID.

Tutoring:
- The Math Tutor Center (free of charge) in WXLR 116 will be open the following hours:

- o   8:00 a.m. - 8:00 p.m. Monday through Thursday
- o   8:00 a.m. - 3:00 p.m. Friday
- o   1:00 p.m. - 6:00 p.m. Sunday
- The <u>Mathematics Community Center</u> (MC^2) in WXLR 303
  - o   Monday – Friday from 10:30 AM – 7:00 PM (no tutors after 4:00pm)
- The <u>Engineering Tutor Center</u> (free of charge) in ECF 100 will be open approximately the same hours Mon – Fri. as the Math Tutor Center.
- Many residence halls and the Memorial Union also offer evening or weekend free tutoring to all ASU students enrolled in math courses as part of the <u>Student Success Centers</u>.

Come in for help before it is too late, and several days before an exam day to strengthen your preparation. In order to be admitted to the Tutor Center each student must present their valid ASU Sun Card.

Video Resources
Videos for the content may be viewed at <u>vidman.asu.edu</u> website.

Important dates:

Course Withdrawal Deadline	Sunday, April 5, 2020
Complete Withdrawal Deadline (withdraw from **all** classes in a session)	Friday, May 1, 2020

Academic Status Report: During the semester you may be issued an academic status report from your instructor if your class grade is failing at that time. Status reports are not a real-time running tally of your grades in the class and are not updated to reflect grades earned after the report has been issued.

COURSE POLICIES

- Students are responsible for assigned material. Students are responsible for material covered in class whether or not it is in the text.
- Working regularly on assigned problems and **attending class** is essential to success.
- You are expected to read the text, preferably before the material is covered in class.

Final Exam Make-up Policy: The final exam schedule listed in the Schedule of Classes will be strictly followed. Except to resolve those situations described below, no changes may be made in this schedule without prior approval of the Dean of the College of Liberal Arts and Sciences. Under this schedule, if a conflict occurs, or a student has more than three exams on one day, the instructors may be consulted about an individual schedule adjustment. If necessary, the matter may be pursed further with the appropriate dean(s). This procedure applies to conflicts among any combination of Downtown Phoenix campus, Tempe campus, Polytechnic campus, West campus, and/or off campus class. Make-up exams will NOT be given for reasons of a non-refundable airline tickets, vacation plans, work schedules, weddings, family reunions, and other such activities. Students should consult the final exam schedule before making end-of-semester travel plans.

Classroom behavior, etiquette and academic integrity policies

- **Students with Disabilities** Disability Accommodations: Qualified students with disabilities who will require disability accommodations in this class are encouraged to make their requests to me at the beginning of the semester either during office hours or by appointment. Note: Prior to receiving disability accommodations, verification of eligibility from the Disability Resource Center (DRC) is required. Disability information is confidential.
- **Establishing Eligibility for Disability Accommodations**   Students who feel they will need disability accommodations in this class but have not registered with the Disability Resource Center (DRC) should contact DRC immediately. Their office is located on the first floor of the Matthews Center Building. DRC

staff can also be reached at: 480-965-1234 (V), 480-965-9000 (TTY). For additional information, visit: www.asu.edu/studentaffairs/ed/drc. Their hours are 8:00 AM to 5:00 PM, Monday through Friday.

- **Policy on Threatening Behavior** All incidents and allegations of violent or threatening conduct by an ASU student (whether on-or off campus) must be reported to the ASU Police Department (ASU PD) and the Office of the Dean of Students. If either office determines that the behavior poses or has posed a serious threat to personal safety or to the welfare of the campus, the student will not be permitted to return to campus or reside in any ASU residence hall until an appropriate threat assessment has been completed and, if necessary, conditions for return are imposed. ASU PD, the Office of the Dean of Students, and other appropriate offices will coordinate the assessment in light of the relevant circumstances.

- **Classroom behavior: Make sure you arrive on time for class** Excessive tardiness will be subject to sanctions. **Under no circumstances should you allow your cell phone to ring during class.** Any disruptive behavior, which includes ringing cell phones, listening to your mp3/iPod player, text messaging, constant talking, eating food noisily, reading a newspaper will not be tolerated. The use of laptops (unless for lecture note taking), cell phones, MP3, IPOD, etc are strictly prohibited during class. Students who engage in disruptive classroom behavior may be subject to various sanctions. The procedures for initiating a disruptive behavior withdrawal can be found at https://clas.asu.edu/resources/disruptive-behavior.

- **Absences related to religious observances/practices:** If you will be absent from class due to a religious observance or practice, it is your responsibility to inform the instructor as soon as possible. Your instructor will work with you on alternative and reasonable arrangements for any time missed.

- **Absences related to university sanctioned events and activities:** If you will be absent from class due to participation in a university sanctioned event/activity, it is your responsibility to inform the instructor as soon as possible. Your instructor will work with you on alternative and reasonable arrangements for any time missed.

- **Academic Integrity:** Academic honesty is expected of all students in all examinations, papers, laboratory work, academic transactions and records. The possible sanctions include, but are not limited to, appropriate grade penalties, course failure (indicated on the transcript as a grade of E), course failure due to academic dishonesty (indicated on the transcript as a grade of XE), loss of registration privileges, disqualification and dismissal. For more information, see http://provost.asu.edu/academicintegrity. Students are expected to maintain the highest ethical standards at all times and in all dealings and interactions with fellow students, faculty, teaching assistants and staff.

- **Failing grades (The E, EN and EU grades)**
  --- The E grade is for students who participated in the class but did not earn enough credit to pass or attain the D grade.
  --- The EN grade is for student who never once participated in the class. At the instructor's discretion, any student who has not attended class during the first week of classes may be administratively dropped from the course. However, students should be aware that non-attendance would NOT automatically result in being dropped from the course. Thus, a student should not assume they are no longer registered for a course simply because they did not attend class during the first week. It is the student's responsibility to be aware of their registration status
  --- The EU grade is for students who participated, but then stopped after a certain point and never resumed.

Withdrawal: A student may withdraw from a course with a grade of **W** during the withdrawal period. The instructor's signature is not required. A complete withdrawal must be done in person and that it involves withdrawing from all ASU classes, not just Math 265. Students will not be withdrawn if they merely stop coming to class. It is a student's responsibility to verify whether they have in fact withdrawn from a class.

The grade of Incomplete: A grade of incomplete will be awarded only in the event that a documented emergency or illness prevents the student who is doing acceptable work from completing a small percentage of the course requirements. The incomplete is not a "get out of jail free" card and cannot be used as an alternative to withdrawal, or as a way to re-take the class for free. The guidelines in the current general ASU catalog regarding a grade of incomplete will be strictly followed.

Title IX is a federal law that provides that no person be excluded on the basis of sex from participation in, be denied benefits of, or be subjected to discrimination under any education program or activity. Both Title IX and university policy make clear that sexual violence and harassment based on sex is prohibited. An

individual who believes they have been subjected to sexual violence or harassed on the basis of sex can seek support, including counseling and academic support, from the university. If you or someone you know has been harassed on the basis of sex or sexually assaulted, you can find information and resources at https://sexualviolenceprevention.asu.edu/faqs.

As a mandated reporter, I am <u>*obligated to report*</u> *any information I become aware of regarding alleged acts of sexual discrimination, including sexual violence and dating violence. ASU Counseling Services, https://eoss.asu.edu/counseling, is available if you wish discuss any concerns confidentially and privately.*

 Note: This syllabus is tentative and should not be considered definitive. The instructor reserves the right to modify it (including the dates of the tests) to meet the needs of the class. It is the student responsibility to attend all class meetings and to make note of any changes. The instructor also reserves the right to create class policies in regards to homework due date, late assignments, etc.