# MATH 2202: Calculus II

# Spring Semester 2019

## Instructor – Dr. Jon Noring

| CRN | Days | Time | Course Num / Sec | Location |
|---|---|---|---|---|
| 12474 | Tue/Thu | 10:00 am to 11:40 am | MATH 2202 / **03** | Math/Stats 109 |
| 12479 | Tue/Thu | 2:00 pm to 3:40 pm | MATH 2202 / **05** | Math/Stats 109 |

*(Course Syllabus: 07 January 2019)*

## A Course in the General Education Program

## Program Description

The General Education Program at Kennesaw State University offers a comprehensive series of interrelated courses in the liberal arts and sciences for all Kennesaw State University students. Whereas the major program contributes depth within a chosen specialization, the General Education core provides breadth of understanding within a variety of disciplines. Together, the General Education core and the major degree program offer students the knowledge, skills, and perspectives to become informed and engaged citizens living in a diverse, global community.

## Program Goals

The General Education Program at KSU has four goals. During the course of the program, students should achieve the following:

- Demonstrate knowledge and understanding of general education disciplines.

- Demonstrate proficiency in communication.

- Demonstrate skills in inquiry, critical thinking, analysis, and problem solving through scholarly and/or creative activity across the general education disciplines.

- Demonstrate an understanding of ethics, diversity, and a global perspective.

**MATH 2202** satisfies one of Kennesaw State University's general education program requirements. It addresses the Applied Math learning outcome. This learning outcome states:

> **Applied Math:** Students will demonstrate an ability to effectively apply symbolic representations to model and solve problems.

For more information about KSU's General Education Program requirements and associated learning outcomes, please visit the topic "University-Wide Degree Requirements" in the KSU Undergraduate Catalog.

# Course Description

**MATH 2202 — Calculus II**

**4 Class Hours  *  0 Laboratory Hours  *  4 Credit Hours**

*Prerequisite:*  *A grade of "C" or better in MATH 1190 or MATH 2253 (SPSU)*

This course is the second in the calculus curriculum and consists of two general parts.  The first part concerns the definition, techniques, and applications of the integral.  The second part concerns infinite sequences and series.

## Expected Learning Outcomes:

1. Recognize indefinite integrals (antiderivatives) corresponding to basic differentiation formulas (learned in Calculus I).

2. Understand and generally apply the *Riemann* definition of a definite integral.

3. Investigate the amazing relationship between the derivative and the integral through the *Fundamental Theorem of Calculus*, and use the *Fundamental Theorem of Calculus* to compute definite integrals using antiderivatives.

4. Learn and apply various analytic integration techniques:  substitution, parts, trigonometric identities, trigonometric substitutions, and partial fractions.

5. Formulate the definite integral for problems such as the area between two curves, the volume and surface area of a solid of rotation, the length of a curve, the average value of a function, and straight line motion displacement.

6. Understand and analytically evaluate both types of improper integrals.

7. Understand the concept of convergence and divergence of sequences and series.

8. Apply series convergence tests such as the integral test, the ratio test, the root test, the comparison test, and the limit comparison test.

9. Understand absolute vs. conditional convergence; determine whether an alternating series is absolutely or conditionally convergent.

10. Differentiate and integrate functions defined by power series.

11. Derive the *Taylor Series* for a function; determine the remainder (error) of the finite sum of a *Taylor Series*.

12. Apply the *Binomial Series* to generate the power series for functions that are expressible as binomial expressions.

# Course Specifics, Policies, Testing, Grading, etc.

## Instructor Information and Walk-In Office Hours

**Instructor:** Dr. Jon E. Noring

**Email:** jnoring@kennesaw.edu

**Text:** 404–789–4284  (when sending text, give your <u>full</u> name and course designation!)

**Instructor's Biographical Information:**

http://www.jonnoring.net/CV/cv.html

**Walk-In Office Hours for Help and Advice:**  Although you may stop by during the following times without prior notice, it is a good idea to clear your visit via text/email. **Other times available by appointment.**

> **Monday and Wednesday:**  10:00 am to 12:00 pm; 1:00 pm to 3:00 pm
> Math/Stats 017 (Kennesaw Campus)

## Course Textbook and *WebAssign* for Homework

**Textbook Title**:  *Calculus: Early Transcendentals, 1st edition* by Michael Sullivan and Kathleen Miranda, published by W.H. Freeman and Company.  Both hardbound and loose-leaf editions are available.  If you plan to purchase a paper textbook edition, make sure it includes *at least* the Single Variable portion (Chapters 1 to 8) since a Multivariable-only edition exists (Chapters 9 to 15, used for Calculus III).

There is no requirement to purchase the paper textbook if you are satisfied using the online (digital/ebook) edition accessible through *WebAssign* (see next).

*WebAssign* **(required!):**  *WebAssign* (which should include access to the complete digital text version of *Calculus: Early Transcendentals, 1st edition*) is a highly regarded and mature third-party online system used for homework.

Nearly all course homework will be completed through *WebAssign*.  *WebAssign* is **required** for this course—**no exceptions!**  As mentioned above, you will get full access to the online digital version of the textbook with a *WebAssign* account (check to make sure!).

You have two possible options to purchase *WebAssign*:

1) Bundled with a paper version of the textbook.  KSU's bookstore *may* offer this option.

2) Stand-alone access which may be purchased directly through *WebAssign*, and possibly also through KSU's bookstore.

<span style="color:red">If you had a *WebAssign* account from a prior semester, first check to see if you can login to that account and access this course using the course key given below.</span>

**Access to and Activation of *WebAssign* for this course:**

Access the *WebAssign* system at:

**http://www.webassign.com/**

The "course key" to connect your *WebAssign* account to this course is:

**kennesaw 7541 5420**

## Classroom and Testing Policies

**Calculator:** There is no requirement for a particular brand/model scientific calculator, although a TI-83, TI-83+, TI-84, or equivalent is recommended as these TI calculators are ubiquitous and there are lots of online resources, such as on *YouTube*, teaching how to use them. (FYI, the instructor uses a Hewlett-Packard RPN emulator on his Android phone!)

This course emphasizes analytical skills and therefore a calculator will only be needed for non-trivial but basic arithmetical operations and for evaluating the transcendental functions (only occasionally necessary). Many graphing chores can be accomplished using Google Search's built-in graphing utility. (Google's calculator and graphing utilities will sometimes be used in class—ask the instructor for help in using Google's graphing utility.)

Some of the TI calculator models can do more advanced mathematical tasks, a feature that may be used to verify an analytically-derived answer. There are many online sites which do the same, notably *Number Empire*.

**Classroom Etiquette:** Simple! Strive to be empathetic. Put yourself into the instructor's shoes and ask what you would expect from your students. Also, put yourself into the shoes of your fellow student and ask if your action is distracting to him or her, whether during a *Lecture* or an *Exam*. In short, follow the "Platinum Rule" and think of others first, and all will be well.

Unfortunately, it also needs to be stated: If a student significantly disrupts the class or continues to distract others despite requests by other students and/or the instructor to stop, the student will be asked to leave the classroom for the day, and

the department consulted for further action.  Disciplinary action following KSU's policies is an option which we hope will never be needed.

**Attendance:**  Regular attendance is essential for success in this course.  *In the event of a student's absence, he or she is responsible for all material, assignments, and announcements presented in the Lecture.*  An attendance sign-in sheet will be provided at the start of each class, and it is to each student's advantage to sign-in.

An official KSU policy related to attendance is:  *"Students are solely responsible for managing their enrollment status in a class; nonattendance does not constitute a withdrawal."*

**Late to Class:**  Per the "Platinum Rule" described in the classroom etiquette section, you are expected to arrive on time to minimize distracting others upon entering the classroom.  If you are late, do your best to enter quietly.  If circumstances make it difficult for you to be consistently on time, consult with the instructor.  With regards to *Exams*:  if you arrive after an *Exam* starts, you will **not** be given extra time except by prior and approved arrangement.  Be on time!

**Participation:**  Students are expected and encouraged to participate in classroom discussion and to stay focused.  Ask questions!

**Study Expectations:**  To most students Calculus II is a very challenging course—many consider it the most difficult course at KSU—requiring the student to develop substantial analytic and intuitive skills to solve many involved and time-intensive problems.  It is impossible to say how many hours outside of class will be necessary for a given student to complete the *WebAssign* Homework (and add to this any self-study to firm up what is taught during the *Class Sessions* and to prepare for *Exams*), but it will be substantial.

**Audio/video recording of the *Lecture*:**  Contact the instructor if you wish to audio or video record any *Lecture* for personal use.  Also, audio/video recording may be allowed by KSU for students with certain disabilities (see below.)  The student is in violation of class rules and *will* be subject to University disciplinary action if he/she shares with others (including online), directly or indirectly, without prior permission of the instructor, an audio/video recording of any portion of the *Lecture* or any other class activity.

**Accommodations for students with disabilities:**  Any student with a diagnosed disability, disorder, or medical condition needing academic accommodations of class-related activities or schedules should contact [KSU Student Disability Services](#).

**Tutoring Help:**  If you are struggling with this course (or even anticipate that you might), then ***definitely seek the help of a tutor or tutoring service—the earlier the better!***  Do not hesitate to ask the Instructor for advice about a tutor.  Wyzant.com is an excellent online resource to find a local tutor.

**Communication:**  The instructor often emails course-related messages which the *students are responsible for immediately reading.*  If you prefer to receive email messages at an email address other than your default KSU ID email address, provide the instructor with that alternate email address.

**Testing:**  Eleven *Exams* (normally twelve *Exams* are given in the course as discussed later) will be administered to assess student mastery of the course content.  They are all closed book and closed notes, except as specifically allowed by the instructor.  Calculators may be used (discussed more in a later section.)

For all testing problems requiring "pencil work" to answer, the student **MUST** submit all step-by-step work sufficient to demonstrate that he or she knows how to manually/analytically solve the problem.

Furthermore, all numerical answers **MUST** be expressed *exactly* in their <u>simplest</u> forms, not as decimal approximations unless specifically requested.  For example, if the answer is $\sqrt{2}$, but the student writes 1.414 as the answer, that will be marked as **incorrect** even if the student's work shows $\sqrt{2}$ as an intermediary quantity.  Another example is $\tan^{-1}(17/8)$ which can only be *exactly* expressed in simplest form by $\tan^{-1}(17/8)$ !  A third example is $\sin(\pi/3)$, which although is exactly expressed, is not in its simplest exact form, $\sqrt{3}/2$.

An exception is where a rational number answer can be expressed *exactly* in decimal form, such as writing 1.5 instead of 3/2 (however, all rational number answers *should* be expressed in fractional form to avoid any ambiguity.)  In addition, do **not** use composite numbers as they are ambiguous in higher math.  For example, $2\frac{2}{3}$ is obviously ambiguous—is it $\frac{4}{3}$ or is it $\frac{8}{3}$ ?  Instead express rational numbers in pure rational form, e.g. , $\frac{8}{3}$.

**Posting of Exam Scores and Bonus/Penalty Points to D2L:**  *Exam* scores and end-of-semester bonus/penalty points will be posted to D2L.  However, what is posted to D2L is not normative and is not binding on the instructor—the normative grading data is kept by the instructor in a master spreadsheet.  If you believe any of your posted grade data is incorrect (which means the entry in the normative spreadsheet *might* also be incorrect), contact the instructor.

**Changes to this Syllabus:**  The instructor reserves the right to amend this Syllabus at any time during the course except if such amendment results in possibly reducing any student's final course letter grade, or the department or university deems the change not in alignment with policy or unfair to some or all the students in some unforeseen way.  The instructor will notify the students if any portion of this Syllabus is significantly changed.  Minor changes, such as fixing typos or improving wording will likely not be announced.  Refer to the version date on the first page to make sure you have the latest version.

## Grading Policy

Your course letter grade will be determined by your *Final Course Score* which is the sum of your scores on the 11 *Exams* (each *Exam* will be normalized to 100 points) multiplied by 12/11, and adjusted upward or downward depending upon your accrued bonus and penalty points. The bonus and penalty points are primarily determined by class attendance and *WebAssign* homework lessons completion.

[Why the 12/11 multiplier mentioned above? In this semester we have lost one day of instruction due to a planned university-wide event on Thursday, April 11 where there will be no classes. Add to this the possibility of one or two "weather-days" which close the university. This necessitates removing one of the normal 12 exams and replacing it by self-study of the removed content and the opportunity for bonus points via *WebAssign*.]

More specific detail on the *Exams* and the *Bonus/Penalty Points* are given in subsequent sections of this Syllabus.

| | |
|---|---|
| *Exams* (11): | **1200 points** |
| **Course Score Adjustment:** | **Bonus and Penalty Points** |
| **Total *(Final Course Score)*:** | **1200 points** |

Course letter grades will be assigned per the *Final Course Score* as follows, subject to the further requirements in the note following this chart:

| | |
|---|---|
| **1140–1200+** | **A**  (see note below) |
| **1080–1139** | **A or B**  (see note below) |
| **960–1079** | **B**  (see note below) |
| **840–959** | **C** |
| **780–839** | **D** |
| **Less than 780** | **F** |

Note: If your *Final Course Score* is 960 and above, which qualifies you either for an 'A' or for a 'B', but your *WebAssign Completion Score* is less than 25.0 you get an automatic 'C' in the course no matter the circumstances. Refer to the section "Requirement to Receive an 'A' or a 'B' in the Course". Note that this minimal requirement does **not** negate the expectation that students achieve a *WebAssign Completion Score* of 50.0 or greater, which will be detailed in a subsequent section.

If your *Final Course Score* is 1080 to 1139, refer to the section "Added Requirement to Receive an 'A' in the Course".

## *Exams:* Coverage

There will be 11 *Exams* covering 28 lectured textbook sections. Each *Exam* will be normalized to a score of **100 points**. Every effort will be made to administer the *Exams* on the scheduled *Testing Session* dates, but this is not guaranteed. Every effort will be made to grade and return the *Exams* within seven days. At the end of the course, the scores of all 11 *Exams* will be added and that total normalized by multiplying by 12/11 (as previously explained) to give the *Course Exams Score.*

Graded *Exams* (except those taken during the scheduled *Final Testing Period*) will be returned to the students, and each student is responsible that his/her *Exam* scores are correctly entered into KSU's *D2L/Brightspace* system.

The following table details the textbook coverage of each *Exam*.

| Exam | Section Title in *Calculus: Early Transcendentals, 1st edition* by Sullivan and Miranda | |
|:---:|---|---|
| 1 | 4.8  Antiderivatives; Differential Equations | |
| 2 | 5.1  Area <br> 5.2  The Definite Integral | |
| 3 | 5.3  The Fundamental Theorem of Calculus <br> 5.4  Properties of the Definite Integral <br> 5.5  The Indefinite Integral | |
| 4 | 5.6  Method of Substitution <br> 7.1  Integration by Parts | |
| 5 | 7.2  Integrals Containing Trigonometric Functions <br> 7.3  Integration using Trigonometric Substitution | |
| 6 | 7.4  Substitution: Integrands Containing $ax^2 + bx + c$ <br> 7.5  Integration of Rational Functions Using Partial Fractions | |
| 7 | 6.1  Area Between Graphs <br> 6.2  Volume of a Solid of Revolution: Disks and Washers <br> 6.3  Volume of a Solid of Revolution: Cylindrical Shells | |
| 8 | 6.4  Volume of a Solid: Slicing Method <br> 6.5  Arc Length <br> 9.3.2  Find the Surface Area of a Solid of Revolution | |
| 9 | 7.6  Integration Using Numerical Techniques <br> 7.7  Integration Using Tables and Computer Algebra Systems <br> 7.8  Iimproper Integrals | **THIS EXAM WILL NOT BE GIVEN IN SPRING 2019** |
| 10 | 8.1  Sequences <br> 8.2  Infinite Series <br> 8.3  Properties of Series; The Integral Test | |
| 11 | 8.4  Comparison Tests <br> 8.5  Alternative Series; Absolute Convergence <br> 8.6  Ratio Test; Root Test <br> 8.7  Summary of Tests | |
| 12 | 8.8  Power Series <br> 8.9  Taylor Series; Maclaurin Series <br> 8.10  Approximations Using Taylor/Maclaurin Series | |

If you miss one or more *Exams* or you wish to improve your scores on certain *Exams* (provided you qualify as will be described later), then you may optionally makeup/retake each *Exam* you choose during the KSU-scheduled *Final Testing Period* (refer to the *Course Calendar*), with the restriction that **you may makeup/retake no more than two *Exams*** (discussed in a later section.)  It is imperative that you not miss any *Exams* when scheduled during the semester since each missed one means one less retake!

## *Exams:* Grading, Misuse of Calculators, and Extra Credit

Regarding the grading of problems in the *Exams*, partial credit will be given even for wrong answers and/or incorrect work to problems requiring "pencil work" (or "show work".) The instructor generally uses the following "rubric" as a **non-binding** guide in grading these problems (this "rubric" is for a problem worth 5 raw points; problems worth more are scored proportionally with some discretionary interpolation):

> *Scoring for a 5 raw point "pencil work" Exam problem:*
>
> **5 Points:** Correct answer **and** rigorously correct work showing complete mastery of solving the problem and the understanding the underlying principles.
>
> **4 Points:** Correct work showing mastery but with a minor error (e.g., $2 + 3 = 6$) leading to an incorrect answer (always check your work!).
>
> **3 Points:** Correct work but with two or more minor problems, or partially incorrect work but overall showing some level of understanding.
>
> **2 Points:** Mostly or completely incorrect work, showing a lack of any substantial understanding of how to solve the problem but a valiant effort.
>
> **1 Point:** Scribbled something quick with no analytic effort which is wholly incorrect, incomplete, unfinished, etc.
>
> **No Credit:** Did not work the problem at all—no work shown—or simply reproduced the problem with nothing more done.

**IMPORTANT:** If a student gives a correct answer to a problem which requires either significant "pencil work" to solve or stating a reasoned mathematical explanation, but does not submit any work justifying the answer, or the shown work is incorrect and cannot possibly lead to the correct answer, the instructor will give *no credit*. There is the legitimate question as to how the student arrived at the correct answer to a complex problem without correct "pencil work" or a valid explanation based on sound mathematical reasoning. **Always show your work or explain your reasoning!**

It is vital that students demonstrate a high degree of rigor in all analytical work: correctly applying the many algebraic and transcendental functional properties, properly writing integrals, and suitably applying the various types of enclosures (parentheses, brackets, etc.) needed for unambiguous grouping and proper PEMDAS evaluation, among other necessary analytic practices. At the discretion of the instructor, students may lose points on a problem, even when the problem is correctly solved, if the analytic rigor does not meet minimum expected standards of correct use

of syntax, notation, and completeness.  Think of expressing a mathematical solution to a problem like writing an essay for a liberal arts class.  Not only should the ideas and wording be correct, but the grammar, punctuation, and spelling also correct.

**Another issue is the use of programmable calculators.  Some calculators are capable of being programmed to analytically solve problems which include the actual step-by-step solutions.  Obviously using such calculators this way in an *Exam* is not allowed, and is considered a form of cheating.  All analytic work must be done by hand.   Of course, using your calculator device to access answers online is also not allowed.  Calculators may *only* be used in *Exams* to calculate a numerical answer if the problem specifically asks for a numerically-derived solution, routine arithmetic calculations, or for graphing purposes as part of analytic verification.**

Extra-credit problems may be offered at the discretion of the instructor on one or more of the *Exams*, and any extra-credit points earned will be added to the raw *Exam* score **before** normalization (these are NOT the same as bonus points which are described in another section).  With extra credit, normalized *Exam* scores will be **capped** at 105 points.  Scoring of extra-credit problems is at the discretion of the instructor and is stricter than the "rubric" given above—the student essentially needs to correctly solve an extra-credit problem (*exact* answer only unless specified otherwise) to receive any significant extra-credit raw points for the problem—even with a correct answer the shown work must be correct, complete, and rigorous to receive full credit.

## *Exams:*  Make-Ups and Retakes;  Final Testing Period

KSU has set the dates of the *Final Testing Period* to be Tuesday, April 30 for Section 5 and Thursday, May 2 for Section 3.  There will be no *Final Exam/Test* in the traditional sense given in this course.  However, during the scheduled *Final Testing Period* each student may, at her or his option, makeup and/or retake (if the student meets the retake requirement noted below) one or **at most two** of the eleven *Exams* given during the course (the versions of the *Exams* given during the scheduled *Final Testing Period* will be different than those given earlier in the course).  This allowance is either for making up a missed *Exam* and/or attempting to improve the score on an already-taken *Exam*.  (If an *Exam* is retaken, the higher of the two scores will be used in determining the *Final Course Score*.  Note that an *Exam* not taken is given a score of zero for all scoring purposes until it is made up.)

**Requirement in order to retake one or two *Exams* during the *Final Testing Period*:** The student must have attained a preliminary *WebAssign Completion Score* of at least 25.0 by the date/time of the *Final Testing Period* for the retaken *Exam(s)* to count.  Note that this does **not** negate the expectation that students achieve a *WebAssign Completion Score* of 50.0 or greater.

## *WebAssign* Homework

The online *WebAssign* system allows the student to work homework lesson problems an effectively ==unlimited== number of times until correct answers are recorded. The student may continue working on any available *WebAssign* homework lesson to improve the completion score up to 11:59 pm of the day of the last scheduled *Final Testing Period* (Thursday, May 02, 2019). Completing or partially completing *WebAssign* homework lessons, or not working on them at all, play a role in both bonus and penalty points, and the final letter grade, which will be explained in later sections.

The following table lists the 28 textbook sections tested in this course (in order of study) with *WebAssign* homework lessons. Note that two of the textbook sections, specifically 5.1 and 5.2, are merged into one homework lesson, giving 27 *WebAssign* homework lessons.

### Studied and Tested *WebAssign* Homework Lessons

| Textbook Section | Section Title in *Calculus: Early Transcendentals, 1st ed.,* by Sullivan and Miranda |
|---|---|
| 4.8 | Antiderivatives; Differential Equations |
| 5.1/5.2 | Area / the Definite Integral (these two lessons are merged into one homework lesson) |
| 5.3 | The Fundamental Theorem of Calculus |
| 5.4 | Properties of the Definite Integral |
| 5.5 | The Indefinite Integral |
| 5.6 | Method of Substitution |
| 7.1 | Integration by Parts |
| 7.2 | Integrals Containing Trigonometric Functions |
| 7.3 | Integration Using Trigonometric Substitution |
| 7.4 | Substitution: Integrands Containing $ax^2 + bx + c$ |
| 7.5 | Integration of Rational Functions Using Partial Fractions |
| 6.1 | Area between Graphs |
| 6.2 | Volume of a Solid of Revolution: Disks and Washers |
| 6.3 | Volume of a Solid of Revolution: Cylindrical Shells |
| 6.4 | Volume of a Solid: Slicing Method |
| 6.5 | Arc Length |
| 9.3 | Surface Area of a Solid of Revolution (Part 2 only) |
| 8.1 | Sequences |
| 8.2 | Infinite Series |
| 8.3 | Properties of Series; The Integral Test |
| 8.4 | Comparison Tests |
| 8.5 | Alternating Series; Absolute Convergence |
| 8.6 | Ratio Test; Root Test |
| 8.7 | Summary of Tests |
| 8.8 | Power Series |
| 8.9 | Taylor Series; Maclaurin Series |
| 8.10 | Approximations Using Taylor/Maclaurin Series |

# WebAssign Completion Score

Your *Course Score Adjustment* (next section), the requirements to earn an 'A' or 'B' in the course (described in a later section), and whether you can retake any *Exam* during the *Final Testing Period*, all rely upon your *WebAssign Completion Score*. So it is important you know what it is and how to calculate it.

Your *WebAssign Completion Score* is calculated by averaging the completion percentage scores of the 27 studied and tested *WebAssign* homework lessons, **with the ten lessons from Chapter 8 being double weighted** (counted twice). This averaging will be done at 11:59 pm of the day of the last *Final Testing Period*, which is Thursday, May 02, 2019.

The maximum value of the *WebAssign Completion Score* is 100, and the minimum is zero.

> **Each student is expected to achieve a *WebAssign Completion Score* (WAC) of at least 50.0 (50%). Although certain requirements outlined in this *Syllabus* require a WAC of at least 25.0 (25%), this does not negate the course expectation of a WAC of 50.0. Note that a WAC of 25.0 results in a penalty of 35 points which is subtracted from your *Final Course Score!* (Described later)**

# Optional WebAssign Homework Lessons

In addition to the studied and tested textbook sections in the table above, there are 6 textbook sections which, because of insufficient classroom time, are not studied/tested, but nevertheless are important enough that students should self-study one or more of these sections and sufficiently complete each section's *WebAssign* homework lesson to earn bonus points (described in a later section.)

| Textbook Section | Section Title in *Calculus—Early Transcendentals, 1st ed.,* by Sullivan and Miranda |
|---|---|
| **6.6** | Work |
| **6.7** | Hydrostatic Pressure and Force |
| **6.8** | Center of Mass; Centroid; the Pappus Theorem |
| **7.6** | Integration Using Numerical Techniques |
| **7.7** | Integration Using Tables and Computer Algebra Systems |
| **7.8** | Improper Integrals |

## Course Score Adjustment

The system is quite simple. You earn bonus points, which will add to your *Final Course Score* (determined from your 11 *Exams*) and you may acquire penalty points which will, in effect, subtract from your *Final Course score*. Fractions of points for bonus and penalty points are rounded *up* to the nearest integer *before* being used in *Final Course Score* adjustment.

**Bonus Points** will be given for the following milestones. This does not count other bonus point opportunities which *may* be offered during the course. At present it is possible to earn a total of **+72 bonus points**.

- **+7 points** for perfect attendance of all scheduled classes and taking all 11 *Exams* when scheduled. (Attendance means being physically present for the entire class meeting.) An absence may be excused (considered class attended) either by prior arrangement or for a documentable, commonly recognized exigency. **It is important to attend all classes and to sign in on the attendance sheet!**

- If your *WebAssign Completion Score*, $P$, is 50 or greater, you will earn bonus points based on this formula: $0.7(P - 50)$ **where** $P \geq 50$. Maximum possible bonus points for this bullet item is **+35 points**.

- For each of the 6 optional *WebAssign* homework lessons, a completion score of at least 75% by 11:59 pm on the day of the last scheduled *Final Testing Period* will earn **+5 points**. Maximum possible bonus points for this bullet item is **+30 points**.

**Penalty Points** (subtracted from your *Final Exam Score* which forms the course score):

- **3 points** for each unexcused class absence (refer to above description about attendance/ absence).

- If your *WebAssign Completion Score*, $P$, is less than 50 you will acquire penalty points based on this formula: $1.4(50 - P)$ where $P < 50$. Maximum possible penalty points is therefore **70 points**.

### *Final Course Score Example—Two Scenarios*

*(Note: this example assumes 12 Exams were given and there were 3 optional WebAssign homework lessons)*

Mary had the following twelve normalized *Exam* scores: 82, 75, 94, 62, 88, 77, 79, 95, 85, 98, 83, and 69. This gives an unadjusted *Exam* score of 987 out of 1200, which, without adjustment, translates to a very low **B**.

In the first scenario, Mary had perfect attendance, had a *WebAssign Completion Score* of 69 (69%) and completed to at least 75% each of the three optional *WebAssign* homework lessons. This gives her a final (adjusted) course score of $987 + 7 + 0.7(69 - 50) + 5(3) = 1020$, which gives Mary a course letter grade of **B**.

In the second scenario given the same *Exam* scores, Mary was absent from class twice, had a *WebAssign Completion Score* of only 27 (27%), and completed to at least 75% score only one of the three optional *WebAssign* homework lessons. This gives her a final (adjusted) course score of $987 - 2(3) - 1.4(50 - 27) + 1(5) = 954$, which gives Mary a course letter grade of **C**.

It's obvious the big difference in *Final Course Scores* between these two scenarios is *WebAssign*.

## Requirement to Receive an 'A' or a 'B' in the Course

If your calculated *Final Course Score* is 960 or above which qualifies you for an 'A' or a 'B', but your *WebAssign Completion Score* is less than 25.0 (25.0%), you will be given an automatic 'C' no matter the circumstances. No exceptions! It is very important to do your *WebAssign* homework lessons!

## Added Requirement to Receive an 'A' in the Course

Receiving an 'A' in this course requires an exemplary level of mastery of *all* the topics in the course. It is possible, for example, to achieve a course score of 1080 (90%), such as by earning a large number of bonus points, and yet have done poorly on one or more of the *Exams* which means the student has not sufficiently mastered at a minimum level **all** the topics in the course. Philosophically-speaking, bonus points are not a good measure of mastery, while *Exams* are.

Thus, if a student has a *Final Course Score* of 1080 to 1139 (90% to <95%), and meets the minimum *WebAssign Completion Score* of 25.0, but has one or more *Exam* scores less than 70 (70 is a low-**C**), then the student will receive a 'B' in the course if the low *Exam* scores are not, or could not be, remedied during the *Final Testing Period*. [If the student's *Final Course Score* is 1140 or greater (95% or greater), the student automatically earns an 'A' provided the student's *WebAssign Completion Score* is 25.0 or greater.]

Since an *Exam* may be retaken during the scheduled *Final Testing Period*, a student who has reached or is close to reaching an 'A-eligible' course score but has one or two poor *Exams* may study and retake those *Exams* to demonstrate mastery of the associated topics and hopefully earn an 'A' in the course.

## Course Calendar

Following is the calendar for this course. Scheduled classes meet each Tuesday and Thursday between and including Tuesday, January 8, 2019 and Thursday, April 25, 2019, except for Spring Break (April 2 and 4, 2019) and the NCUR conference (Thursday, April 11, 2019).

The "Deadline" dates (highlighted in light red) are important administrative events (not class meetings) relevant to the course. The scheduled *Final Testing Period* (for regular *Exam* make-ups or retakes) is highlighted in yellow.

| Week Number | Date (2019) | Day of Week | Event Description |
|:---:|:---:|:---:|:---:|
| 1 | Jan 08 | Tue | Syllabus and Class Overview; Section 4.8 |
| 1 | Jan 10 | Thu | Sections 5.1/5.2 (single unit reimagined) |
| 2 | Jan 13 | Sun | Deadline: Last Day To Drop/Add Course (11:45 pm) |
| 2 | Jan 15 | Tue | Sections 5.1/5.2 (cont) |
| 2 | Jan 17 | Thu | Exams #1 and #2 covering 4.8, 5.1/5.2 |
| 3 | Jan 22 | Tue | Sections 5.3 to 5.6, 7.1 |
| 3 | Jan 24 | Thu | |
| 4 | Jan 29 | Tue | |
| 4 | Jan 31 | Thu | |
| 5 | Feb 05 | Tue | Exams #3 and #4 covering 5.3 to 5.6, 7.1 |
| 5 | Feb 07 | Thu | Sections 7.2 to 7.5 |
| 6 | Feb 12 | Tue | |
| 6 | Feb 14 | Thu | |
| 7 | Feb 19 | Tue | |
| 7 | Feb 21 | Thu | |
| 8 | Feb 26 | Tue | Exams #5 and #6 covering 7.2 to 7.5 |
| 8 | Feb 27 | Wed | Deadline: Last Day to Withdraw w/o Academic Penalty! |
| 8 | Feb 28 | Thu | Sections 6.2 to 6.5, 9.3.2 |
| 9 | Mar 05 | Tue | |
| 9 | Mar 07 | Thu | |
| 10 | Mar 12 | Tue | |
| 10 | Mar 14 | Thu | Exams #7 and #8 covering 6.1 to 6.5, 9.3.2 |
| 11 | Mar 19 | Tue | Sections 8.1 to 8.7 |
| 11 | Mar 21 | Thu | |

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|---|---|---|---|
| 12 | Mar 26 | Tue | |
| 12 | Mar 28 | Tue | |
| 13 | Apr 02 | Tue | **Spring Break – NO CLASS** |
| 13 | Apr 04 | Thu | |
| 14 | Apr 09 | Tue | **Exams #10 and #11 covering 8.1 to 8.7** |
| 14 | Apr 11 | Thu | **NCUR – NO CLASS (grumble, this is why you have Exams on April 09!)** |
| 15 | Apr 16 | Tue | **Sections 8.8 to 8.10** |
| 15 | Apr 18 | Thu | |
| 16 | Apr 23 | Tue | |
| 16 | Apr 25 | Thu | **Exam #12 covering Sections 8.8 to 8.10; Make-Up Exam Allowed** |
| 17 | Apr 30 | Tue | **FTP (Sec. 05): 1:00 pm to 3:00 pm (for *Exam* retakes and make-ups)** |
| 17 | May 02 | Thu | **FTP (Sec. 03): 10:30 am to 12:30 pm (for *Exam* retakes and make-ups)** |
| 17 | May 02 | Thu | **Final *WebAssign Completion Score* calculated at 11:59 pm** |
| 18 | May 09 | Thu | **Deadline For Instructor: Final Letter Grades Due, 5:00 pm** |

# *WITHDRAWAL FROM THE UNIVERSITY OR FROM INDIVIDUAL COURSES — ACADEMIC INTEGRITY*

# *Spring Term, 2019*

## Withdrawal

Students who find that they cannot continue in college for the entire semester after being enrolled, because of illness or any other reason, need to complete an online form.  To completely or partially withdraw from classes at KSU, a student must withdraw online at http://www.kennesaw.edu, under Owl Express, Student Services.

The date the withdrawal is submitted online will be considered the official KSU withdrawal date which will be used in the calculation of any tuition refund or refund to Federal student aid and/or HOPE scholarship programs.  It is advisable to print the final page of the withdrawal for your records.  Withdrawals submitted online prior to midnight on the last day to withdraw without academic penalty will receive a "W" grade.  Withdrawals after midnight will receive a "WF".  Failure to complete the online withdrawal process will produce no withdrawal from classes.  Call the Registrar's Office at 770-423-6200 during business hours if assistance is needed.

Students may, by means of the same online withdrawal and with the approval of the university Dean, withdraw from individual courses while retaining other courses on their schedules.  This option may be exercised up until February 27, 2019.

This is the date to withdraw without academic penalty for Spring Term, 2019 classes.  Failure to withdraw by the date above will mean that the student has elected to receive the final grade(s) earned in the course(s).  The only exception to those withdrawal regulations will be for those instances that involve unusual and fully documented circumstances.

## Academic Integrity

Every KSU student is responsible for upholding the provisions of the *Statement of Student Rights and Responsibilities*, as published in the Undergraduate and Graduate Catalogs.  Section II of the *Statement of Student Rights and Responsibilities* addresses the University's policy on academic honesty, including provisions regarding plagiarism and cheating, unauthorized access to University materials, misrepresentation/falsification of University records or academic work, malicious removal, retention, or destruction of library materials, malicious/intentional misuse of computer facilities and/or services, and misuse of student identification cards.  Incidents of alleged academic misconduct will be handled through the established procedures of the Department of Student Conduct and Academic Integrity (SCAI), which includes either an "informal" resolution by a faculty member, resulting in a grade adjustment, or a formal hearing procedure, which may subject a student to the Code of Conduct's minimal one semester suspension requirement.