Welcome to Physics 1012: Basic Physics II. This course is fully online, and will utilize Discussion Boards, Quizzes, Lecture Questions, Exams, and Labs (if you signed up for that portion of the course) to facilitate student learning and comprehension. Assignments must be completed two days following their assignment. A schedule will be provided with due dates and assignments each week.

Instructor Bio
I graduated from UM—St. Louis through the joint PhD program with the Rolla campus in December of 2012. I studied the composition of ices and gases surrounding forming stars. I have been teaching at various institutions in the St. Louis area since 2011, with courses including Physics, Astronomy, Earth Science, Physical Science, and even Biomechanics. I have taught online for about 6 years now.

Teaching Philosophy
- This is an extremely fast-paced crash course in Physics. I will be providing written and video lectures, worked out examples, lecture questions, comprehensive quizzes, and suggested homework to help you master the material. This mastery will be evaluated via exams.

I will respond to questions via the discussion board if I feel it is something the entire class should know, or via email for private communication. You can expect a response within 36 hours, excluding weekends, during which I will check and respond to inquiries once.

Virtual Office Hours: I will hold virtual office hours via zoom, Monday through Thursday from 10 – 11. These can be extended to 11:30 if students are present in the room by 11 and need help. The link to the conference room is: https://umsystem.zoom.us/j/3145165931

Contact information:
Name: Dr. Kari A Wojtkowski (why COWS ski)
Phone number: N/A
Email address: wojtkowskik@umsl.edu

I graduated from UM—St. Louis through the joint PhD program with the Rolla campus in December of 2012. I studied the composition of ices and gases surrounding forming stars. I have been teaching at various institutions in the St. Louis area since 2011, with courses including Physics, Astronomy, Earth Science, Physical Science, and even Biomechanics. I have taught online for about 6 years now.
It is my belief that repetition is the most productive method for mastery of material. In addition, I believe that students not only need to be taught concepts, but be shown examples to help them understand how to apply those concepts.

Finally, I believe frequent evaluation of student progress is a must. Research has shown that the classic method of lecture, midterm, and final is not the most productive method for mastery of material.

About this course:


Note: The 5th edition (not the 4th edition) is required.

**Other course materials:** Required: A scientific calculator (with trig functions)

**PREREQUISITES:**
- MATH 1030 (Algebra)
- MATH 1035 (Trigonometry)
- Calculus (MATH 1100 or 1800) strongly recommended
- Physics 1011 (Physics I)

**WARNINGS:**
- This course will not satisfy the Physics requirement for Physics, Engineering or Chemistry students
- Biology and Biochem/Biotech students must take the 3 credit version of the course and the 1 hour lab.

**Time Requirements:** If this course were offered on campus, you’d be in class 2.5 hours/day (Monday through Thursday) plus travel time. The online version is no different in terms of expectations for your involvement. This is an active online course that requires 2 – 3 hours of your time for each hour you would be in class, or 5 – 8 hours a day in addition to the time it takes you to read the required materials, watch the videos, and complete the assignments. That means that you need to plan to spend a minimum of 20 hours every week (up to 30 – 35 hours a week) on activities related to this course. If you are worried about your preparedness, consider taking the Online Readiness Survey to help decide if an online course is right for you.

**Technology Requirements:**
As a student in an online course, you are expected to have reliable internet access almost every day. If you have computing problems, it is your responsibility to address these or to use campus computing labs. Problems with your computer or other technology issues are not an excuse for delays in meeting expectations and missed deadlines for the course. If you have a problem, get help in solving it immediately. At a minimum, you will need the following software/hardware to participate in this course:
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Basic Physics II

1. Computer with an updated operating system (e.g. Windows, Mac, Linux)
2. Updated Internet browsers (Apple Safari, Google Chrome, Mozilla Firefox)
3. Ability to navigate Canvas (Learning Management System)
4. Ability to navigate YouTube and watch YouTube videos
5. Minimum Processor Speed of 1 GHz or higher recommended.
6. DSL or Cable Internet connection or a connection speed no less than 6 Mbps.
7. Media player such as VLC Media Player.
8. Adobe Flash player (free)
9. Adobe Reader or alternative PDF reader (free)
10. A webcam and/or microphone is highly recommended. (You will need this in order to participate in virtual office hours).
11. Livescribe player (to play back examples from the notes). It is free. You access it using http://www.livescribe.com/player/
12. Phone to take pictures of work or a scanner to scan in work. (You might consider a scanner app for your phone).

Course Description: Prerequisites: MATH 1030, MATH 1035, and PHYSIC 1011 required, MATH 1100 or MATH 1800 strongly recommended, concurrent enrollment in PHYSICS 1012L recommended. This course is specifically designed for students in health and life sciences covering the topics in classical mechanics such as kinematics, Newton's laws, energy, momentum and oscillations. This course will not fulfill the PHYSICS 2112 requirement for physics, chemistry, and engineering majors.

Goals of the Course:

Broad Course Objectives:

1. Students will be able to correctly identify useful relationships and concepts when analyzing a physical situation in electricity and magnetism.
2. Students will use technical terminology correctly and appropriately to convey information precisely.
3. Students will report measurements and calculations with appropriate units and uncertainty, converting units as needed.
4. Students will be able to draw physical situations to scale, make useful, not-to-scale diagrams, and extract information from diagrams of physical situations.
5. Students will be able to read and interpret graphs, graph data, fit it appropriately, and extract information from their fit.

Specific Course Objectives:

1. Students will be able to explain the nature of electric charge, electric force, electric potential and electric field.
2. Students will be able to use electric and magnetic fields to predict and explain the motion of charged particles.
3. Students will be able to describe equipotential surfaces.
4. Students will be able to use the concepts of current, voltage, resistance, and reactance to predict and explain DC and AC electric circuit behavior.
5. Students will be able to identify characteristics of capacitors and perform calculations involving capacitance, voltage, and charge.
6. Students will be able to explain the nature of magnetism and describe the behavior of magnetic phenomena.
7. Students will describe the concept of magnetic flux and apply it to Faraday’s Law and Lenz’s Law.
8. Students will be able to describe the properties of electromagnetic waves.
9. Students will develop a ray model for light and use it to predict and explain image properties.
10. Students will be able to explain the evidence supporting wave-particle duality and solve problems involving the wave behavior of light and matter and the particle behavior of light.

Lab Course Objectives:

1. Students will demonstrate an ability to independently collect, analyze, and evaluate data.
2. Students will communicate meaningful experimental results to their instructors.
3. Students will be able to draw reasonable conclusions from physical data collected by themselves or others and defend their reasoning. They will be able to defend standard physical models by explaining the evidence that supports them.

How to Succeed in This Course

This course will utilize the following components:

MODULES: The course is divided into four modules. Each module will consist of a page for each day of the week (the daily schedule). Each day there will be a list of items to be completed, for example, read the chapter, watch the notes/examples, complete the lecture questions, complete the quiz, do a lab (if you are enrolled in the lab section), and complete the suggested exercises. This list will include a link to where that particular task is found. All assignments, with the exception of exams, are due two days following their assigned date (or appearance in the daily schedule), at 11:59 p.m. All tasks that must be completed for the course will be listed in this daily schedule.

LECTURES: Lectures will be available for each chapter as .pdf documents. In addition, I will record lectures (voice only) with the provided lecture slides. Those recordings will be available via YouTube link. Watching the video lectures is not required, but is strongly recommended. (It will be as though you are in class as I go over the lecture, but without my face/actual presence).

EXAMPLES: I will work out examples found in the lecture notes using a LiveScribe Echo SmartPen. Those files will be saved as pdf’s, that, when uploaded to the livescribe player, will highlight the appropriate text as I discuss that portion of the problem. Tapping or clicking at a particular point in the pdf starts the playback at that point. This player can be found at http://www.livescribe.com/player/
EXAMS: There will be three regular exams during the course. The exams will be approximately 40% multiple choice / short answer, 60% problems. Exams are 1 hour and 35 minutes (95 minutes total), which includes 20 extra minutes for uploading screenshots of worked problems. Though the exams are not officially cumulative, the CONCEPTS are cumulative. The final exam IS cumulative, and will also include the material we’ve covered since the last exam. Regular exams will be assigned the first class day of the week (holidays excluded), and must be taken between 7:00 a.m. and 12:00 p.m. (noon).

EXAM LOGISTICS: Exams will be taken via Canvas, and do not require a proctor. Students may use only their book, notes, and a calculator. Multiple choice questions will be pooled from the Reading Quizzes and will be marked correct/incorrect, no partial credit will be awarded. Problems must be worked out on paper. Students are expected to upload their work to Canvas as they finish each problem and before their exam is submitted or the exam times out. This work can be scanned using a phone app or scanner. Photos of the work are also acceptable. All work must be legible and upright (not turned on its side). Photos of work must be taken in an appropriate location (for example, be sure there is plenty of light, take the photo on a table or counter, not your lap). Be sure to show all of your work for full credit on problems. Partial credit will be awarded for some mastery of problems. A typical in-class exam would be 75 minutes, so an additional 20 minutes has been added to allow for time to document and upload your work on problems. Note that although exams are open-book and open-notes, you will NOT have enough time to look up a substantial amount of the information, and you should prepare as though you were taking the exam in a classroom setting, with a time allotment of 75 minutes.

MAKEUP EXAMS: Makeup exams will not be given under any circumstances. The lowest exam score will be dropped.

EXAM COVERAGE: cumulative.) The final exam IS cumulative, and will include the material we’ve covered since the last exam.

EXAM GRADING: I will do my best to get graded exams back to you within a week.

READING QUIZZES: Reading quizzes will be given via Canvas. They are not timed but can only be taken once. (You may open & close the quiz numerous times, but once you submit, the quiz is final). They are open-notes/open-book. These quizzes will test students’ knowledge of new vocabulary and check their understanding of the concepts. They are important to study for the exams. Each quiz will be created from a pool of questions, and will be different for each student. There is no partial credit awarded for quizzes, so no work needs to be uploaded. The lowest quiz score will be dropped.

LECTURE QUESTIONS: Lecture questions, denoted LQ #XX, will be presented in the lecture. Students should answer the questions as they watch/read the lecture. Afterwards, they will upload the answers via a Canvas Lecture Questions “quiz.” These are open-book/open notes and untimed, but may only be submitted once. There is no partial credit awarded for these questions, so no work needs to be uploaded. The lowest LQ score will be dropped.
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**HOMEWORK:** There will be suggested homework exercises for each chapter. These will not be turned in for a grade, but will be essential for understanding the material and passing the exams. **The ethics of physics homework:** you MUST TRY to solve the problems on your own. If you have trouble, you may discuss the problems with your classmates (or with me, of course). You may get ideas from your classmates about how to solve the problems, but you may NOT copy directly from anyone else’s work. This comes from the way science is done “for real” – you can always talk to other people to get ideas from them – that is essential to how research is done – but you may not plagiarize. If you are really confused about a homework problem, come talk with me and I will give you some hints to point you in the right direction.

**HOW TO STUDY/BE SUCCESSFUL: MUST READ SECTION!!**

1. **MAKE TIME:** Budget your time so that you have at least **2-3 hours after every lecture** to go over the new material learned and to solve assigned homework problems. Of course, you don’t have to budget a 2 hour block. This could mean spending an hour on Tuesday and another hour on Wednesday. In general, you should spend AT LEAST 3 hours for each hour you are in class (12-15 hours) every week on Physics. This includes reading the chapters, reviewing notes, and working homework & other problems. A more realistic estimate is 18-20 hours per week, outside of class, including your lab write-ups.

2. **READ:** This is an absolute must – read the chapters assigned!!!! So, you are **expected to read the assigned chapter before watching/reading the lecture.** You read that correctly—read the chapter BEFORE lecture! I cannot possibly lecture over every detail that the book provides, so I intend to present the main ideas, theories, and equations, but finer details will be captured in the reading material.

3. **TAKE NOTES:** PowerPoint slides are intended to be a general outline of the material covered and NOT a complete coverage of the material. It is my intention that you come to class with the PowerPoint handouts, add relevant information to each slide, highlight important information, and write down solutions to all in class activities on these handouts.

4. **ACTIVELY PARTICIPATE:** Physics is a problem-centered subject, so I’ve designed a good portion of lecture around problem solving. This includes examples I will work in class, examples you will work in in groups in class, and multiple choice questions scattered throughout lecture. To get the maximum benefit from these problem solving sessions, you need to actively participate in trying to solve the given problem or determine the correct answer for the quick multiple-choice questions. You should ask questions to help your understanding of the material and the problem solving process and rework all of these examples on your own outside of class. **You are welcome and encouraged to ask questions in the Q & A Café or during my office hours.**

5. **WORK and RE-WORK:** Re-work in class activities, completed homework, and quizzes to help assess your understanding of the material and your understanding of the individualized learning objective(s) set for that chapter. Setup additional, unassigned problems to test your understanding.

6. **GET HELP:** As soon as you start to fall behind seek help - visit my office hours, talk to friends, ask your lab instructor, talk to the supplemental instructor, or go to the academic success center for free tutoring.
Instructional Technology: The following tools will support the instructional strategies for this course: (web searches, PowerPoint and other web and computer-aided instruction, etc.)

If this is your first online course, it is recommended that you log into Canvas and complete the **Online Course Overview** listed in your Canvas course list. If you’ve already completed the orientation, you do not have to retake it but you can refer to it for helpful videos and tutorials about the technologies used in this course.

Assessment/Grading

**GRADING SCHEME:**
Exams (3) 25% each (lowest is dropped)
Final 25%
Reading quizzes 15%
Lecture Questions 10%

**GRADE SCALE:**

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<tr>
<th>Grade</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>A</td>
<td>92-100</td>
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<tr>
<td>A-</td>
<td>90-91.99</td>
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<td>D-</td>
<td>60-61.99</td>
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**Feedback and Grading Timeline:** Exams will be graded with feedback within 1 week. All other assignments are automatically graded by Canvas. You can find grade in the Grades button on Canvas.

Delayed grades will not be assigned for this course. If you choose to withdraw, it is your responsibility to initiate the appropriate paperwork with the registrar’s office. On, or prior to, May 28, students may drop the course without receiving a grade. On, or prior to June 4, a course grade of EX will be assigned to any student who chooses to withdraw. As of June 10, students choosing to withdraw will have their current course grade calculated. In this case, students having a current course grade less than 60% will be assigned a grade of EX-F while those having a course grade of 60% or better will be assigned a grade of EX.

**Important Dates**

- June 15 – Session II classes begin
- June 17 – Last day to add a class
- June 17 – Last day Registrar’s Office will move students automatically from the wait list to open sections
- June 22 – Last day to drop a Session I course without receiving a grade
- June 22 – Last day to place a Session I course on satisfactory/unsatisfactory basis.
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June 22 – Exam I
June 29 – Exam II
June 29 – Last day to drop a Session I course without instructor approval. EX grade will be issued.
July 3 – Independence Day Holiday
July 6 – Exam III
July 6 – Last day a student may drop or withdraw from a Session I course. Instructor’s approval is required. EX or EX-F grade will be issued.
July 9 – Final Exam
July 11 – Session I closes, end of day

Online Class Netiquette/Behavior

- **Be self-reflective** before you post an emotional response and reread what you have written to be sure it is positive. Think of your comments as printed in the newspaper. Your online comments will be seen, heard and remembered by others in the class.

- **Use effective communication.**
  - Avoid the use of all caps or multiple punctuation elements (!!!, ???, etc).
  - Be polite, understate rather than overstate your point, and use positive language.
  - If you are using acronyms, jargon or uncommon terms, be sure to explain them so everyone can understand and participate in the discussion.

- **Ask for clarification** to a point if you feel emotional from a classmate’s post. It is likely that you misunderstood his/her point. This strategy will also help you step away from the intensity of the moment to allow for more reflection.

- **Sign your name.** It is easier to build a classroom community when you know to whom you are responding.

- **Foster community.** Share your great ideas and contribute to ongoing discussions. Consider each comment you make as one that is adding to, or detracting from, a positive learning environment for you and your classmates.

- **Be constructive.** You can challenge ideas and the course content, but avoid becoming negative online. When you disagree politely, you stimulate and encourage great discussion. You also maintain positive relationships with others with whom you may disagree on a certain point.

- **Keep the conversation on topic** by responding to questions, adding thoughtful comments about the topics at hand. Online dialogue is like conversation. If there is a certain dialogue going on, please add to it, but if you have something new to say, please post it in another thread.

- **Define your terms.** When using acronyms or terms that are particular to your field (or new to our course), please define them for others.
Course Policies

Participation (expectations)

• It is vitally important that our classroom environment promote the respectful exchange of ideas. This entails being sensitive to the views and beliefs expressed during discussions whether in class or online. Please speak with me before recording any class activity. It is a violation of University of Missouri policy to distribute such recordings without my authorization and the permission of others who are recorded.
• Formal discussion boards are not required. A discussion board, Q & A Café, is available where you can ask general questions about the class and interact with your classmates. I might not respond to each post but will be monitoring each discussion. I will try to answer all questions within 36 hours. Regardless, the Online Discussion Protocol is included for reference, and should be followed even for informal discussions.
• Your success in this course will heavily depend on your ability to communicate, engage and participate in all course activities. Successful completion of this course requires that a student keep up with all assignments and coursework and discussions.

Online Discussion Protocol

• Participation in the course should maintain a positive work and learning environment, as outlined in the UM Collected Rules & Regulations, 330.080
• Postings should be evenly distributed during the discussion week.
• Postings should be a minimum of three sentences, or one short paragraph, and a maximum of two paragraphs.
• Responses should be well written with proper punctuation, spelling and grammar.
• Avoid short one-word postings, for instance, “I agree,” unless accompanied by supporting statements from the readings or prior knowledge (work and life experience).
• Stay focused on the topic.
• Ask questions; challenge other postings that lack supporting evidence or present incorrect information.
• Encourage further discussion by building on current threads.
• Check your postings for responses from others and respond in kind.
• Use proper “netiquette”.

Attendance Policies

• Present in class for online courses is determined by participation in an “academically related activity,” i.e. submission of an assignment, assessment or discussion forum posting. The last day of attendance is the last day a student is academically participating in the online course.
• Documentation that a student has logged into an online class is not sufficient by itself to demonstrate academic attendance.
Academic Integrity/Plagiarism

- You are responsible for being attentive to and observant of University policies about academic honesty as stated in the University’s Campus Policies and Code of Student Conduct found in the UMSL Bulletin
  - Academic dishonesty is a serious offense that may lead to probation, suspension, or dismissal from the University. One form of academic dishonesty is plagiarism – the use of an author's ideas, statements, or approaches without crediting the source. Academic dishonesty also includes such acts as cheating by using any unauthorized sources of information and providing or receiving unauthorized assistance on any form of academic work or engaging in any behavior specifically prohibited by the faculty member (e.g., copying someone else’s answers on tests and quizzes). Unauthorized possession or distribution of academic materials is another type of academic misconduct. It includes the unauthorized use, selling or purchasing of examinations or other academic work, using or stealing another student’s work, unauthorized entry or use of material in a computer file, and using information from or possessing exams that an instructor did not authorize for release to students. Falsification is any untruth, either verbal or written, in one’s academic work. Facilitation is knowingly assisting another to commit an act of academic misconduct. **Plagiarism, cheating, and falsification are not acceptable.**
  - All instances of academic dishonesty will be reported to the Office of Academic Affairs who will determine whether you will appear before the Student Conduct Committee for possible administrative sanctions such as dismissal from the university. The instructor will make an academic judgment about the student’s grade on that work in this course. The campus process regarding academic dishonesty is described in the “Policies” section of the Academic Affairs website
- Plagiarism is the use of another person’s words or ideas without crediting that person.
- Plagiarism and cheating will not be tolerated and may lead to failure on an assignment, in the class, and dismissal from the University, per the UMSL academic dishonesty policy.

Title IX Policies

In adherence to the policies of Title IX and to promote a safe and secure educational environment, it is strongly recommended statements similar to those below be added to your course syllabus:

- **Mandatory Reporting:** Under Title IX, all UMSL faculty, staff, and administrators (with limited exception) are obligated to report any incidents of sexual harassment, sexual misconduct, sexual assault, or gender discrimination to the Student Affairs office and/or other University officials. This ensures that all parties are protected from further abuses and that victim(s) are supported by trained counselors and professionals. Note: There are several offices at UMSL (e.g., Counseling Services, Health Services, Community Psychological Service, Center for Trauma Recovery, and Student Social Services) whose staff are exempt from Title IX mandated reporting, when the information is learned in the course of a confidential communication.
Student Resources

Supplemental Instruction:
We have been assigned a supplemental instructor for this course, Tyler Hanke. Tyler has been an SI Leader for various physics and astronomy courses over the past few years and will be starting graduate school in the fall. He will introduce himself and provide contact information in the announcements at the start of the course. You can learn about the supplemental instruction (SI) program here: https://www.umsl.edu/services/ctl/studentsupport/SI.html

Access, Disability and Communication
Your academic success is important. If you have a documented disability that may have an impact upon your work in this class, please contact Disability Access Services (DAS) immediately. Students must provide documentation of their disability to the office of Disability Access Services in order to receive official University services and accommodations. The staff is available to answer questions regarding accommodations or assist you in your pursuit of accommodations. Information about your disability is confidential. Once DAS reviews your medical documentation, they will provide you with the information and steps to inform me about the accommodations to which you are entitled. Your accommodations will begin as soon as we discuss your approved accommodations.

- 144 Millennium Student Center (MSC)
- Phone: (314) 516-6554
- Email: Tara Cramer, cramert@umsl.edu
- Website: http://www.umsl.edu/services/disability/

Office of International Students and Scholar Services
If you have difficulty communicating in English with the instructor of this course, contact ISS.

- 362 Social Sciences & Business Building (SSB)
- Phone: (314) 516-5229
- Email: iss@umsl.edu
- Website: http://www.umsl.edu/~intelstu/contact.html

Student Enrichment and Achievement
SEA provides comprehensive support and intervention strategies that support your road to graduation!

- 107 Lucas Hall
- Phone: (314) 516-5300
- Email: umslsea@umsl.edu
- Website: https://www.umsl.edu/services/sea/
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Office of Multicultural Student Services (MSS) and the University Tutoring Center (UTC)
MSS provides comprehensive student retention services to diverse student populations; through their tutoring center, the MSS offers comprehensive tutoring services free to students at UMSL.

- 225 Millennium Student Center (MSC)
- Phone: (314) 516-6807
- Email: multicultural@umsl.edu
- Website: https://www.umsl.edu/~mcraa/index.html

More Student Resources are on the Learning Resource Lab website.

Technical Support

Online Mentor Program
Online education requires different teaching, learning, and technology skills than those found in traditional face-to-face classes. We assist students with the online technology in Canvas and provide resources for studying and success in online classes.

- 598 Lucas Hall
- Phone: (314) 516-4211
- Email: onlinementor@umsl.edu
- Website: http://www.umsl.edu/services/ctl/studentsupport/omp.html
- The online mentor for this course is Ericka Cables. She will make an announcement introducing herself at the beginning of the course.

Canvas
If you have problems logging into your online course, or an issue within the course site, please contact the Technology Support Center:

- Phone: (314) 516-6034
- Email: helpdesk@umsl.edu
- Website: http://www.umsl.edu/technology/tsc/

If you are having difficulty with a technology tool in Canvas, consider visiting the Canvas Student Guides, which has overviews of each tool and tutorials on how to use them.

If you continue to experience problems or just have questions, you can also contact the Learning Resource Lab:

- Phone: (314) 516-6704
- Email: lrl@umsl.edu
- Website: http://www.umsl.edu/technology/lrl/
Academic Support

The Writing Center
At the Writing Center, students collaborate with consultants on their writing. Students can make appointments to meet with writing consultants on campus, or to work online. Consultants work with lots of writing concerns: bigger issues such as clarity, developing ideas, and organization—or with other concerns such as grammar and academic citation. Students can also access more resources, including Turnitin, by enrolling into the Writing Center Canvas site.
- To find the WC course, click on Courses ➔ All Courses. Then click to join the course
- Location: 222 Social Sciences and Business Building (SSB)
- Website: https://www.umsl.edu/~umslenglish/Writing Center/
- Appointments: https://umsl.mywconline.com

Math Academic Center (Math Lab)
The Math Academic Center offers free individual assistance on a walk-in basis to students needing help with any mathematics from basic math through calculus or any course involving mathematical skills.
- 222 Social Sciences and Business Building (SSB)
- Website: http://www.umsl.edu/mathcs/math-academic-center/

Grading
- Students can expect their work to be graded within one week of the due date. Most quizzes and Lecture Question assignments are either right or wrong, and so you will get an instant grade for those.
- Should you feel that any grade listed in Canvas is incorrect, you have one week to resolve the issue with the instructor. After one week, all assigned grades are final.
Tentative Schedule (Subject to change at the Instructor’s discretion)

Monday, June 15: Chapter 19 – Electric Charges, Forces, & Fields; NO LAB (Read Introduction to Statistics, Error and Measurement)

Tuesday, June 16: Chapter 19 – Electric Charges, Forces & Fields; NO LAB (Read Introduction to Statistics, Error and Measurement)

Wednesday, June 17: Chapter 20 – Electric Potential & Electric Potential Energy; LAB 1: Electrostatic Force (Coulomb’s Law)

Thursday, June 18: Chapter 20 – Electric Potential & Electric Potential Energy; LAB 2: Electric Fields and Equipotential Surfaces

Monday, June 22: **Exam I: Ch 19 & 20** & Chapter 21 – Electric Current and Direct Current Circuits; NO LAB

Tuesday, June 23: Chapter 21 – Electric Current and Direct Current Circuits; Lab 3: Ohm’s Law

Wednesday, June 24: Chapter 22 – Magnetism; LAB 4: Resistors in Series and Parallel

Thursday, June 25: Chapter 22 – Magnetism; LAB 5: Kirchhoff’s Laws

Monday, June 29: **Exam II (Ch 21 & 22)** & Chapter 23 Magnetic Flux & Faraday’s Law; NO LAB

Tuesday, June 30: Chapter 23: Magnetic Flux & Faraday’s Law; Lab 9: RC Circuits

Wednesday, July 1: Chapter 25 – Electromagnetic Waves; Lab 8: Magnetic Field Induced by a Current-Carrying Wire

Thursday, July 2: Chapter 26—Geometrical Optics; Lab 10: Reflection & Refraction

Monday, July 6: **Exam III (Ch 23, 25, and 26)** & Chapter 28 – Interference and Diffraction; NO LAB

Tuesday, July 7: Chapter 28 – Interference and Diffraction; Lab 11: Diffraction, Wavelength, and Atomic Line Spectra

Wednesday, July 8: Chapter 28 – Interference and Diffraction; NO LAB

Thursday, July 9: **Final Exam** – Cumulative