Spring 2024, Physics 2401

Instructor: Aleksandr Chernatynskiy
117 Physics
aleksandrc@mst.edu (~24 hours response time)
Help Session: 2-4 pm Tuesday, PHYS 202
Office Hours: By appointment, or feel free to stop by if the door (Phys 117) is open

Text: *Mathematical Methods in Physical Sciences*, by M.L. Boas

Web: Canvas, https://umsystem.instructure.com/

Instruction: This class follows the standard lecture/discussion approach during the class sessions. **My** lectures notes will be made available for download through Canvas, but those are **my** notes. They do not guarantee to contain nether all the material discussed in the class, nor the full details. Almost every lecture will start with 5 minute or so quiz with "simple" computational questions covered on the previous lecture, which I will collect and grade. Homework will be assigned every week.

Grading:

Homework (10 highest score assignments out of ~12)	15%
Quizzes (80%)	15%
Exam 1 (09/21) Exam 2 (10/21) Exam 3 (11/18) Final (Comprehensive)	70%

The grade for the class consists of three elements: quizzes, homework and exams, as highlighted in the table above.

- For quizzes, the grade is the average grade of all your scores. Pretty much count on quiz every session. The purpose is a review of the previous lecture material and fluidity in applying the math concepts that we learn in class. Some number of quizzes scores (~20%) will be dropped.
- Assigned homework is to be submitted via CANVAS every week on the due date, late homework **will not** be accepted. For an honest attempt to solve the homework **full credit will be given**; Instructor will return the homework with the feedback. Attempting and turning in the homework is a must, if "A" is desired. Solutions will also be discussed during the class sessions.
- The hour exams will be given in class at the following anticipated dates: **1: 02/07, 2: 03/08 and 3: 04/15**. The lowest grade on one of these exams will be dropped. The final will be comprehensive and undroppable (is that a word?).

- Every problem in the exam will be graded on the 10 point scale and the overall score adjusted to make up the percentage indicated in the table.
- After the first exam, I will have an individual meeting with everyone who would get "C" or lower on it in order to find a way for improvement.

Absolute Grading Scale: The grade cuts are (to four significant figures):

A for 89.50% of total possible points
B for 79.50% of total possible points
C for 69.50% of total possible points
D for 59.50% of total possible points
F for less than 59.50% of possible points

The grade cuts are absolute and will not be lowered. Points will not be added to a student's grade to bring it above the cutoff.

Statement about Copyright, FERPA, and Use of Video

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 obtain instructor permission before recording any class activity. It is a violation of University of Missouri policy to distribute such recordings without authorization and the permission of all who are recorded. More information is provided online.

Accessibility and Accommodations

It is the university's goal that learning experiences be as accessible as possible. Student Accessibility and Testing provides services and accommodations that facilitate full participation in Missouri S&T's learning experience for students with disabilities. If you anticipate or experience physical, academic, and/or digital barriers due to a disability, please contact Student Accessibility and Testing at (573) 341-6655, email dss@mst.edu, or visit https://saat.mst.edu/ for information.

Student Honor Code and Academic Integrity

- All students are expected to follow the Honor Code.
- Student Academic Regulations describes the student standard of conduct relative to the University of Missouri System's Collected Rules and Regulations section 200.010, and offers descriptions of academic dishonesty including cheating, plagiarism, sabotage, and **unauthorized use of artificially generated content**, any of which will be reported to the Vice Provost for Undergraduate Education.
- Other resources for students regarding academic integrity can be found online.

Student Well-Being (https://wellbeing.mst.edu/)

Your well-being is important, and it contributes to your success in this course. At S&T, we provide resources to support your mental, physical, and social well-being. Any of us can experience challenges that make learning difficult. If you are struggling, take advantage of the following resources offered by the university:

Student Well-Being
Student Well-Being provides counseling services, health promotion initiatives, and prevention programs to empower the S&T community to thrive and enhance personal, academic, and professional success. Department office hours are Monday-Friday, 8 a.m. – 5:00 p.m. On the website, you can find information related to confidential individual and group counseling, wellness consultations and trainings, resources for many health and wellness topics, and help for mental health crisis situations.

For the National Suicide Prevention Lifeline, call or text 988, or visit missouri988.org.

Health and Well-Being Canvas Course (https://umsystem.instructure.com/enroll/G3LY3G)
The Health and Well-Being Canvas Course features trainings, presentations, and other health and well-being resources for students. The course is free for all students, is non-credit, and students can enroll at any point in the semester.

Student Support and Community Standards is your "Google Maps" for support. During your time at S&T, you or a friend may need help navigating their student experience, facing a barrier, or experiencing a challenge. You are not alone!

Student Support has a dedicated team and numerous resources such as UCARE and the student emergency fund to help you navigate the S&T experience and support your success. This includes support to address barriers related to academic, personal, emotional, medical, financial, or any other needs. All students can learn and grow from challenges or setbacks, they are stepping stones to success and we are here to help.

Nondiscrimination, Equity, and Title IX
Missouri S&T is committed to the safety and well-being of our campus community, and to creating an environment free from discrimination and harassment.

The University prohibits discrimination and harassment on the basis of race,

color, national origin, ancestry, religion, sex, pregnancy, sexual orientation, gender identity, gender expression, age, disability, protected veteran status, and any other status protected by applicable state or federal law. As used in this policy, the word "sex" is also inclusive of the term "gender."

Additionally, US Federal Law Title IX states that no member of the university community shall, on the basis of sex, be excluded from participation in, or be denied benefits of, or be subjected to discrimination under any education program or activity. Sexual harassment violations of this law include quid pro quo, hostile environment, sexual assault, dating/domestic violence, and stalking. The U.S. Department of Education has stated the prohibition on discrimination on the basis of sex includes sexual orientation and gender identity.

Students who are experiencing pregnancy or pregnancy-related conditions, including the birthing parent and non-birthing parent, have rights protected under Title IX. Students should contact the Office of Equity and Title IX to learn more about their rights and pregnancy-related assistance/accommodations provided by the University to ensure equitable access to University educational programs and activities.

In accordance with the University of Missouri's Collected Rules and Regulations, all faculty and staff are required to report any information concerning discrimination disclosed through communication including, but not limited to, direct conversation, email, social media, classroom papers and homework exercises to the Equity Officer/Title IX Coordinator.

For more information regarding support for those that have been impacted or to report an incident of discrimination or harassment as defined by Chapter 600 of the University's Collected Rules and Regulations, visit the Office of Equity and Title IX or visit their website at equity.mst.edu.

Office of Equity and Title IX
Equity Officer and Title IX Coordinator: Dr. Paul Hirtz
Phone: (573) 341-7734
Location: 900 Innovation Drive, Suite 500
E-mail: equity@mst.edu

Classroom Egress Maps
For all in-person instruction, faculty should explain where the classroom emergency exits are located. Classroom egress maps are posted at http://designconstruction.mst.edu/floorplan/.

Learning Assistance through LEAD

The Learning Enhancement Across Disciplines (LEAD) program runs Learning Centers and Tutoring which provide an efficient means to improve your understanding and increase your mastery of the material you are studying. Discipline-based faculty and undergrad peer instructors operate open-environment learning centers in nearly every foundational course as well as many upper-level courses. See the schedule for LEAD learning assistance at https://lead.mst.edu/schedule/.

Writing and Communication Center

The Writing and Communication Center's mission is to assist all students in their efforts to become better writers, communicators, and critical thinkers. The Center's peer consultants and coaches provide free individualized one-on-one and small-group conversations to offer meaningful feedback and guidance to students across all disciplines. More information can be found on our website, through email: writing@mst.edu or stop by Curtis Laws Wilson Library 314–315.

Student Success Center

The Student Success Center (SSC) supports student development through peer Academic Mentoring focusing primarily on STEM courses, peer-to-peer soft skill coaching which can also act as an accountability buddy, and campus programming – all while providing free coffee and hot beverages! All undergraduate students are encouraged to utilize the SSC's free services to get timely support and to enhance their S&T Miner Experience. Contact us at success@mst.edu OR 573-341-7590. To see the course offerings and times for SSC Academic Mentoring, visit https://studentsuccess.mst.edu/academicmentoring/.

Knack Tutoring (https://mst.joinknack.com/)

Enrolled S&T undergraduate students can receive complimentary **FREE** tutoring assistance from peers who have successfully completed the course, available round the clock. You have the option to connect via the Knack platform online or in person on campus. If you've excelled in a course, consider becoming a Knack Tutor to support your fellow Miners!

Student Veterans Resource Center

The Student Veterans Resource Center (SVRC) is the nexus of resources and support for student veterans at S&T. The SVRC provides student veterans with a "safe space" and a familiar atmosphere. The center's Veteran Consuls provide one-on-one consultations to guide students to various resources on campus, while its advisor provides students with VA health and benefits resources. Visit the SVRC at Harris Hall, Suite G10, and contact us at svrc@mst.edu.

Intro to Theoretical Spring 2024

Phys 2401

Course topics

Date	Topics/Reading material	Homework
	Complex numbers, Vectors, matrices, Eigenvalue problem, Linear algebra.	# 1
		# 2
		#3
		#4
02/07	Midterm Exam 1	
	Probabilities, Sequencies and Series, Asymptotic analysis, Theory of functions of complex variables	#5
		#6
		#7
03/08	Midterm Exam 2	
	Multivariable calculus, Vectors fields, Path integrals, Differential equations	#8
		#9
		#10
04/15	Midterm Exam 3	
	Variational calculus, Partial differential equations	#11
		#12
05/08	Final Exam @ 3.00 pm	