Syllabus

Physics& 221: Engineering Physics I

Fall 2024

	Faculty	**Class**

Faculty

Name: Nathan Chapman

Whatcom Email: NChapman@whatcom.edu

Whatcom Phone: N/A

Office Location: Kulshan 210

Office Hours:
Math Center (LRN 340)
MF 9am-11am

Class

Section:

Location: Kulshan 210

Days/Time:
MF 11:30am-1:30pm
W 10:30am-1:30pm

Start Date: 09/24/24

End Date: 12/13/24

Course

- Credit hours: 5.00 (3.00 lecture) (2.00 lab) (0.00 work site)
- Prerequisites: 151 MATH& with a minimum grade of C or better and one college level physics course or a high school physics course.
- Co-requisite(s): None
- AAS degree requirements: Math/science distribution
- Fulfills additional requirements: "l" Lab course

Textbook

(**RECCOMENDED**) *Physics for Scientists and Engineers with Modern Physics*, Randall Knight. Current edition. Pearson.

Other Resources

1. (**REQUIRED**) Student Workbook to Accompany Phys for Sci & Eng, Randall Knight, current edition.
2. (**REQUIRED**) Access to MasteringPhysics.com for homework and problem solving coaching.
3. (**REQUIRED**) WCC Lab packets, current edition, unpublished

Course Description

Basic principles of mechanics. Emphasis on critical analysis, interpretation, and problem solving, energy and momentum conservation, rotational motion, static equilibrium.

Course Outcomes

Upon successful completion of this course, each student should be able to:

1. Describe, interpret and predict one and two-dimensional motion using multiple graphical representations, mathematical and physical models, and experimental data.
2. Describe, interpret and predict the motion behavior of systems of two and three interacting bodies, using Newton's three laws of motion.
3. Describe, interpret and predict the motion behavior of systems of two and three interacting bodies, using conservation of momentum principles.
4. Solve multi-part physics problems relating to the study of mechanics.
5. Inquire about the validity of predictions and expectations of a system's behavior, using digital and manual laboratory equipment.
6. Communicate evidence based reasoning.

Core Learning Abilities

WCC's core learning abilities (CLAs) - communicating, information literacy, quantitative reasoning, social justice, and thinking - are overarching skills that are taught and reinforced throughout our curriculum and a student's time at WCC. These skills are integral to students' professional and personal lives. This course will give you the opportunity to practice and develop one or more of these core learning abilities.

Course Format

In-person: This class meets in-person on scheduled days and times.

Attendance

During the first week of the term, it is important students attend and participate in all classes in which they are registered. A student who does not attend or log in by the beginning of the fifth class in the term and who has not made prior arrangements with the instructor may be dropped from the class at the discretion of the instructor.

Course requirements and policies

The grading distribution for this course is as follows

Category	Weight
Homework	30%
Lab	30%
Worksheets	30%
Midterm	5%
Final Exam	5%

Student equipment check out

Students can check out a laptop for the quarter using the device checkout agreement available in MyWCC under the My Account tab.

Access and disability services

Any student with a disability requiring auxiliary aids, services, or other reasonable accommodations should contact the access and disability services office in Laidlaw 134 to make an appointment (ads@whatcom.edu, 360.383.3139, or 711 relay service for deaf callers).

Affirmation of inclusion

WCC is committed to maintaining an environment in which every member of the College community feels welcome to participate in the life of the College, free from harassment and discrimination. We welcome people of all races, ethnicity, national origins, religions, ages, genders, sexual orientations, marital status, veteran status, abilities, and disabilities. Toward that end, faculty, students, and staff will treat one another with respect and dignity; promote a learning and working community that ensures social justice, understanding, civility and non-violence in a safe and supportive climate; and influence curriculum, teaching strategies, student services, and personnel practices that facilitate sensitivity and openness to diverse ideas, peoples and cultures in a creative, safe, and collegial environment.

Non-discrimination policy, Title IX, and sexual misconduct

WCC does not discriminate based on race, color, national origin, religion, sex, disability, honorably discharged veteran or military status, sexual orientation, genetic information, or age in its programs and activities. WCC's discrimination and harassment policy (615), Title IX [sexual misconduct and harassment] policy (616), and student rights and responsibilities policy (620) strictly prohibit sexual harassment, intimidation, and violence. Anyone who has experienced sexual misconduct is encouraged to contact a WCC counselor (Laidlaw 134, 360.383.3139) to receive confidential support and learn about reporting options. Any disclosure of such misconduct shared with another faculty or staff member is non confidential and requires a report to WCC's Title IX coordinator, who has been designated to handle such reports. Inquiries regarding non-discrimination, Title IX, and sexual misconduct policies can be directed to the Title IX coordinator at 360.383.3400.

Accommodations for reasons of faith or conscience

Students who will be absent from course activities due to reasons of faith or conscience may seek reasonable accommodations, so grades are not affected. Such requests must be made to the instructor within the first two weeks of the quarter and should specify the exact dates the student will miss. The instructor and student will then identify the specific reasonable accommodations for the missed class sessions.

Student Conduct Expectations

This course includes elements that require not only your physical presence, but also your mental presence. The work we will do in this course is highly technical and collaborative; be prepared to engage with the content and your peers every day.

Tentative Course Schedule

Week #	Topic & Chapter	Chapter	Other
Week 1	Concepts of Motion	1	
Week 2	Kinematics in One Dimension	2	
Week 3	Vectors and Coordinate Systems	3	
Week 4	Kinematics in Two Dimensions	4	
Week 5	Forces and Motion	5	Midterm
Week 6	Dynamics: Motion Along a Line	6	
Week 7	Newton's Third Law	7	
Week 8	Dynamics II: Motion in a Plane	8	
Week 9	Impulse and Momentum	9	

Week #	Topic & Chapter	Chapter	Other
Week 10	Energy	10	
Finals			Final

Expectations for in-person instruction safety and illness protocols

Conducting this class in person requires all participants to follow the established safety rules to ensure the safety of all. If you are unable to meet these requirements for any reason, you should not enroll in this course and we encourage you to consider one of WCC's online offerings.

Guidelines for interacting with other students ("netiquette")

The WCC netiquette statement states that students participating in WCC's online courses agree to interact with others in a positive, cooperative, and supportive manner and display respect for the privacy and rights of others. This statement is inclusive of, but not limited to, the following guidelines:

- Be courteous about what you say to or about others in any electronic format. In electronic communication, the golden rule is "remember the human"; there is a real person with real feelings on the receiving end of your post.

- Be respectful and open to opinions and ideas that differ from yours. The exchange of diverse thoughts, ideas, and opinions is an essential part of the scholarly environment. Keep in mind the people in your classes may come from backgrounds and have views that may vary significantly from your own.

- Flaming – the posting of messages that are deliberately hostile and insulting in an online social context – is not appropriate under any circumstances. While everyone (learners and instructors alike) is encouraged to share ideas and opinions openly, you should never use insults or resort to name-calling, even if you disagree strongly with what someone else has written.

- When responding to messages or posts made by others, address the ideas, not the person.

- Be careful when using sarcasm and humor. Without social cues, such as facial expressions and body language, a remark meant as humorous could come across as hurtful or offensive. Do not assume the use of emoticons, such as :-), is enough to convey your tone or intent.

- Capitalizing whole words is generally seen as SHOUTING and is often offensive to the reader. Use all capital letters sparingly, such as to highlight a meaningful word or point.

Guidelines for contacting the instructor.

The best way to get a hold of me is by email at NChapman@whatcom.edu. I intend to be unavailable outside of conventional work hours.

Classroom meetings

As this course includes a laboratory component, your attendance during these periods (usually every Wednesday) is of the utmost importance (see **Course requirements and policies**). Additionally, the midterm and final exams will be on paper and in-person (see **Tentative Course Schedule**).

Technology requirements

Ensure you have regular access to a desktop or laptop computer with an internet connection to complete coursework. The College has numerous computer labs and a library with computers that may be used to complete coursework. Also, laptops can be checked out for the quarter using the device checkout agreement available in MyWCC under the My Account tab. While tablets, smartphones, and other mobile devices may allow for completion of some coursework, they are not guaranteed to work in all areas. For example, it is recommended students do not attempt quizzes on Canvas when using a mobile device, such as a smartphone or tablet, due to compatibility issues.

Web browser: Use Firefox or Chrome as your web browser when using Canvas.

Student support services

- WCC communicates with students via their WCC issued student email. Students can check email by clicking the WCC email tile in the student portal or by logging into MyWCC.

- Your WCC issued student email is the official form of campus communication and will be used to contact you for class updates, events, and important reminders. If you would like to forward your student email to a personal email account, follow these instructions.

- WCC is committed to supporting the academic success of all its students. The College has adopted a proactive early alert referral system, which is a collaborative, student-centered initiative involving faculty, advisors, and students. The early alert referral system is a tool for faculty to identify students who are experiencing academic or attendance difficulties during the first few weeks of each quarter. Students who receive an alert will be contacted by someone on the student success team to direct them to appropriate next steps and resources for success. As your instructor, I also encourage you to contact me if you receive an alert so we can discuss options for helping you to be successful in this course and at WCC.

- Visit orca central to access advising, financial aid, and enrollment assistance and to connect with resources. Orca central is located on the main floor of the Heiner Center building and can be reached at 360.383.3080 or orcacentral@whatcom.edu.

- The learning center, the math center, and the writing center offer free in-person and online tutoring and writing support for all courses.

- The student helpdesk is available for technical assistance and device checkout.

- Advising and career services offers in-person, phone, and zoom advising. Call 360.383.3080 for assistance connecting with your advisor.

- WCC's library is open and librarians are available to assist you in person and online.

- The Simpson intercultural center welcomes all students looking for community, connections, and engagement.

- The veteran services office offers support to veterans, service members, and eligible dependents to help them accomplish their educational goals.

- Student success coaching and TRIO student support services are available for eligible students. Services include personalized advising, coaching, mentoring and more. Visit their webpages for eligibility requirements. Sign up to receive email and text notifications about college closures due to inclement weather or any other unforeseen circumstances. You can also find out about closures on WCC's website or by calling 360.383.3000. If the College is open, you should always base your decision on whether to attend class on what is safest or best for you.

- Workforce funding offers several funding programs to students experiencing specific life and educational circumstances that may go beyond financial aid and scholarships. To learn more about workforce funding programs and whether you are eligible, please complete an inquiry form and one of the program advisors will contact you.