



Fall 2021

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Phys 122 B: General Engineering Physics II

Fall 2021, Item #3977

This syllabus is subject to change. Major changes will be announced online. You will be held responsible for all major and minor changes. Changes after the first day of class are marked in yellow highlighter.

How do I attend class? When do we meet?

Lectures are pre-recorded and will be available for on-demand viewing via Canvas home page. There are NO LIVE LECTURES in our course. You do not need to attend lectures at a specific time; just view them from the front page of Canvas as they become available.

Several times per quarter you may be required to meet with me or your lab group members using Zoom.

Online exams are only held during the official time slots for our class. Tentative days for exams will be posted early in the quarter. To see the official time slots so you know the possible times, visit

<https://www2.bellevuecollege.edu/classes/Fall2021/PHYS>

Who is the instructor? How do I contact you if I have a question?

- Brian M. Stephanik, Ph.D.
 - Please call me "Brian", but if you prefer "instructor" or "professor" or "hey you," that's all fine with me.)
 - My last name is pronounced STE-fuh-nik (stress on first syllable).
 - If you're curious about my background and interests, visit [About Brian Stephanik](#)
- Please join our class' Slack workspace. It is the best way to get your questions answered. I hope everyone can join. You must use your bellevuecollege.edu email address to sign up: <https://join.slack.com/t/phys122fall20-bny5230/signup>
- Alternatively you can send me a [Canvas message](#) or send a direct email at brian.stephanik@bellevuecollege.edu
- You can visit me during [office hours](#). Instructions are at [Office hours via Zoom](#)

What is this course about?

Physics is the study of matter, energy, interactions, space, and time. Astronomy, biology, chemistry, geology, engineering, and modern technology all apply the principles of physics. Modern technology also involves applications of physics. Our course focuses on a subfield of physics called electromagnetism. We will begin by studying the gravitational force at long ranges because it has very similar properties to the electric force. After studying the electric force, we move on to circuits and magnetism. Time permitting, we will end the course by looking at electromagnetic induction which is one of the most important ideas in our modern-day life. But perhaps more importantly, some of the tools and concepts you will learn apply more broadly to physics and science in general, such as the experimental basis and application of scientific models and general problem-solving techniques

What will I learn?

This is an abbreviated list of course outcomes. A more exhaustive list can be found at [Phys 122 learning outcomes](#).

After successfully completing Phys 122, students should demonstrate mastery of these outcomes:

- "Think like a physicist" outcomes:** recognize and articulate systematic behaviors in nature; construct knowledge that does not depend on any outside authority; understand nature as governed by a small set of physical laws and principles; represent problems verbally, graphically, and mathematically; exhibit a spectrum of problem-solving skills.
- Communication outcomes:** be able to successfully communicate science in authentic forms; evaluate the quality of observations and physical reasoning; read physics content written at the college level; interpret and generate physical reasoning using multiple representations.
- Specific outcomes:** acquire knowledge of universal gravitation, electrostatics, circuits, magnetism, electromagnetic induction; connect fundamental laws and principles to ordinary experiences as well as to future professional careers; describe what physicists find unifying and elegant in having very few laws that describe a wide array of phenomena.

Special COVID-19 statements

Personal statement from Brian

- Your health and the health of everyone around you is most important. We will not meet on campus this quarter. If you are unable to complete any assignments due to health concerns of yourself or your family, contact me as soon as possible, or ask someone else to contact me.
- Everyone at Bellevue College, from administrators to faculty & students, is taking this quarter one step at a time. Although your experience this quarter will not be the same as it would be in a normal one, I am confident we can still meet the course outcomes. Please ask if anything is unclear or if you are having difficulty meeting the requirements.

Physics department statement

- The Physics Department began conversations in late Winter 2020 concerning the restrictions to teaching on campus and started developing strategies for online teaching in your course this quarter and have continued to improve strategies for effective learning. We are utilizing a variety of technologies and will be in constant collaboration to help ensure that your success in the course and subsequent courses is impacted as little as possible. To achieve this, we are pooling some resources and our experience with technology with each other to leave time to develop high quality instruction across the entire course. The goal is to continue to meet, under these new conditions, the departmental learning objectives of your course. Because of this, you may find that some resources for your class are contributed by other faculty, such as online examples, lecture/demos videos, lab videos, etc.
- Instructors across the department have agreed that in order to achieve the laboratory outcomes associated with the "lab credit" of the course, a certain amount of hands-on experiences will be required. Providing these experiences without students coming to campus is the challenge our department faculty face. Although some labs traditionally geared towards conceptual development of key physics ideas may be reformatted so that you can use simulations and videos online, some of your lab experiences will involve first-hand observations and analysis. Faculty are working together to make the appropriate adjustments so that the lab learning objectives are met across all physics classes at BC.

November 2021						
31	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	1	2	3	4
5	6	7	8	9	10	11

Assignments are weighted by group:

Group	Weight
Assignments	0%
Imported Assignments	0%
Reading quizzes	10%
Online HW	15%
Written HW	0%
Labs	20%
Exams	55%
Total	100%

What materials do I need for this class?

- **Computer and daily internet access:** All assignments are assigned and distributed online. Check our Canvas site and your school email daily.
- **Textbooks:** You need the textbook (Physics by Resnick, Halliday, & Krane, 5th ed., vol. 1 and 2) and an active WileyPLUS account.
- **WileyPLUS (Online homework system):** Keep your New WileyPLUS access code that you get from the bookstore or purchase separately. It's possible to purchase this online without the bookstore, but be sure to calculate costs before doing this!
- **Lab kit:** You will need to place an order for a laboratory kit from the B.C. bookstore. The kit will likely be on backorder, but they will be shipped to you (or available for pickup) ASAP. Alternatively, I will provide a list of kit items so you can locate the equipment yourself.
- **Calculator:** You will need a scientific or graphing calculator to complete some assignments.
- **Webcam and microphone:** A webcam and microphone are useful for discussing physics with me and your group members online.
- **Other resources and recommendations:**
 - If you feel you need additional resources, any physics textbook published in the last 15 years will have pretty much the same content but organized and presented in a different manner.
 - If you are struggling on a *particular topic or problem*, I do not recommend searching for equations online. That is the wrong way to go about physics. It is much better to understand the general principles of physics from a resource that gives a big-picture view. Many online resources don't do this. Physics textbooks, on the other hand, are designed to provide you with such a view. There are several resources listed on our website (front page, very bottom), including a free online/PDF calculus-based physics textbook from OpenStax.org
 - Of course, you are always welcome to discuss any problems you are having with me during office hours.

What types of homework or activities will I do?

Reading quizzes (completed online, Canvas)

There will be quizzes over assigned reading. I anticipate that most students will browse the textbook to find the relevant section rather than reading the textbook word-for-word. I'm okay with this. Be aware that all late submissions of reading quizzes will be manually converted to scores of zero by the end of the quarter.

In-video lecture quizzes

Many of the video lectures will incorporate quizzes. These are not graded in any way. Use your performance as a self-assessment tool.

Online homework (submitted online via WileyPLUS)

Online homework will usually be assigned weekly using the WileyPLUS system. The purpose is to give you practice in applying general principles to solving problems in specific contexts. You will need an access code, which is available from the BC Bookstore bundled with the physical textbook, or for separate purchase online.

This quarter, the physics department is trying out a new version of WileyPLUS that is integrated into Canvas. This means you will not need a Course ID (though you should still need an Access Code). You can access WileyPLUS through the "WileyPLUS Resources" link on the left side of our main Canvas page.

For late submission policies, go to the particular WileyPLUS assignment and look there.

Solutions are available for WileyPLUS homework problems after the due date.

Written homework (optional/ungraded)

Written homework are assigned approximately once per week. These assignments go more in-depth into the physics and/or mathematics than what we can do in lecture. They are also good practice for the free-response portion of exams. Some assignments may also guide you in developing broad scientific skills, such as equation editing or dimensional analysis.

Written homework is not collected, nor is it graded. You are encouraged to work together. Solutions will be posted after the "due date."

Laboratory reports (group projects, submitted via PDF online)

You will write lab reports using one or more of these activity types: (1) at home using equipment you already have; (2) using a simulation; (3) with real data given to you; (4) a lab rental kit. The lab report that you turn in via PDF will either be *informal* or *formal*. I will tell you which type when you start the lab. Informal reports are simpler and should take only a few hours to complete. Formal reports are more detailed. Most lab reports will be group projects. You may be required to meet with your group members via Zoom.

On one or more labs you may be required to rate your group members out of 4 points as to how well they fulfilled their role within the group. For example, if person A chooses to write the Analysis portion and proofread all other sections, but does not proofread or provide feedback of any kind, then you might give them a rating of 2 or 3 points out of 4. All ratings are confidential, meaning only I will see your ratings.

The members for each group lab are randomized each assignment; you will not be with the same individuals the whole quarter.

Exams (completed online)

Exams will have a multiple choice portion (Canvas multiple choice) as well as a free-response portion (you write on paper or a digital medium and submit a PDF). The exams will be timed, and you will have a defined window in which to take the exam. During the exams, you may use books, notes, or our video lectures, etc., but no "outside" resources are allowed. That means you cannot use the internet to answer the questions.

To be very precise, Chegg or any other related help/Q&A/assistance/chatting/friends/etc. are not allowed. You may not post or discuss the exam questions at any time with students outside of our class. Doing so constitutes cheating and steps will be taken with Bellevue College. You may, however, discuss the exam questions with students who are part of your class section after the exam has taken place and only in private one-on-one chat, which means no channel-wide Discord posts etc.

The final exam is not cumulative; it only covers later material that has not yet been tested.

How will my course grade be calculated? Do you curve the class?

Your final course grade is weighted by course component. These percentages are subject to change throughout the quarter. The most up-to-date information will always be found here.

Course Component	Weight for course grade
Reading quizzes (RQ)	10%
WileyPLUS (online)	15%
Written HW	0%

Labs	20%
Exams	55%

Below are the **guaranteed minimum letter grades** you will receive in the course based on your overall course percentage. At my discretion the actual letter grade scale used for all students may be more generous.

≥ 93%	≥ 90%	≥ 87%	≥ 83%	≥ 80%	≥ 77%	≥ 73%	≥ 70%	≥ 67%	≥ 60%	< 60
A	A-	B+	B	B-	C+	C	C-	D+	D	F

Statement of curving: Almost always the median score for my courses is between 83% and 87%. In the case that the median is well below 83%, then I may manually increase everyone's final course percentage by a constant amount until the median is roughly 85%. You should NOT assume this will happen since its occurrence is so rare. Often I don't even know whether I will do it until the final exam is graded. This is the only type of curving that can happen in this course. I do not curve individual assignments or exams.

What if I need accommodations?

To the extent possible, both the in-class and online elements of this course are designed to be welcoming to, accessible to, and usable by everyone, including students who are English-language learners, have a variety of learning styles, have disabilities, or are new to online learning. Be sure to let me know immediately if you encounter a required element or resource in the course that is not accessible to you. Also, let me know of changes I can make to the course so that it is more welcoming to, accessible to, or usable by students who take this course in the future.

The Disability Resource Center serves students with disabilities. A disability includes any physical or mental impairment that substantially limits one or more major life activities. Common disabilities include physical, neurological (e.g. Autism, ADD), and mental health (e.g. depression, anxiety). If you are a student who has a disability or if you think you may need accommodations in order to have equal access to programs, activities, and services, please contact the DRC.

If you require assistance in an emergency, please meet with your individual instructors to develop a safety plan for while in class and contact the DRC to develop a safety plan for while you are elsewhere on campus.

If you are a student with a documented autism spectrum disorder, there is an additional access program available to you. Contact Bellevue College's Neurodiversity Navigators. Their contact information can be found at <https://www.bellevuecollege.edu/autismspectrumnavigators/> ^e

The DRC office is located in building B132. You can contact the DRC by stopping by B132, calling our desk at 425-564-2498, emailing drc@bellevuecollege.edu. Deaf students can reach us by Skype (account name DRCatBC). For more information about the services we offer, including our Initial Access Application, visit our website: <http://www.bellevuecollege.edu/drc> ^e

Only Service Animals and Emotional Support Animals approved by the DRC are allowed in this classroom. All other animals will be asked to leave. If you believe you need your animal with you, please connect with the DRC and refrain from bringing your animal until a decision has been made.

Affirmation of Inclusion

Bellevue College is committed to maintaining an environment in which every member of the campus community feels welcome to participate in the life of the college, free from harassment and discrimination. We value our different backgrounds at Bellevue College, and students, faculty, staff members, and administrators are to treat one another with dignity and respect. Affirmation of Inclusion: <https://www.bellevuecollege.edu/inclusion/> ^e

Accommodations for Reasons of Faith & Conscience

Students who will be absent from course activities due to reasons of faith or conscience may seek reasonable accommodations so that grades are not impacted. Such requests must be made within the first two weeks of the course to the office of the Associate Vice President of Student Affairs (see Bellevue College Policy 2950 (<https://www.bellevuecollege.edu/policies/id2950/>) ^e). In the event you feel you are being discriminated against based on faith or conscious, you may refer to the procedures outlined in the college's Discrimination, Harassment and Retaliation Policy 1440P (<https://www.bellevuecollege.edu/policies/id-1440p/>) ^e. College Anti-Discrimination Statement

Annual Notice Non-Discrimination

Bellevue College does not discriminate on the basis of race or ethnicity; creed; color; national origin; sex; marital status; sexual orientation; age; religion; genetic information; the presence of any sensory, mental, or physical disability; or veteran status in educational programs and activities which it operates. Bellevue College is prohibited from discriminating in such a manner by college policy and by state and federal law. All college personnel and persons, vendors, and organizations with whom the college does business are required to comply with applicable federal and state statutes and regulations designed to promote affirmative action and equal opportunity. Equal Opportunity (<http://www.bellevuecollege.edu/equal/>) ^e

Confidentiality and Mandatory Reporting (Title IX Compliance)

As an instructor, one of my responsibilities is to help create a safe learning environment on our campus. It is my goal that you feel able to share information related to your life experiences in classroom discussions, in your written work, and in our one-on-one meetings. I will seek to keep information you share private to the greatest extent possible. However, I am required to share with the Title IX Coordinator any and all information regarding sexual assault and other forms of sexual misconduct (e.g. dating violence, domestic violence, stalking) that may have occurred on campus or that impacts someone on campus. Students may speak to someone confidentially by contacting the BC Counseling Center at (425) 564-2212. The Title IX Office can be contacted at 425-564-2641 and more information can be found at Title IX (<http://www.bellevuecollege.edu/titleix/>) ^e. If you have any concerns, you may report to: Report Concerns (<https://www.bellevuecollege.edu/reportconcerns/>) ^e.

Prohibited student conduct

All students are required to follow all parts of the Bellevue College Student Code (<https://www.bellevuecollege.edu/policies/id-2050/>) ^e. Of central importance are the following three behaviors related to academic dishonesty, all of which are strictly prohibited:

Cheating includes any attempt to give or obtain unauthorized assistance relating to the completion of an academic assignment.

Plagiarism includes taking and using as one's own, without proper attribution, the ideas, writings, or work of another person in completing an academic assignment. May also include the unauthorized submission for credit of academic work that has been submitted for credit in another course.

Fabrication includes falsifying data, information, or citations in completing an academic assignment and also includes

Students are prohibited from giving false information or cheating in completing an academic assignment and also prohibited from providing false or deceptive information to an instructor concerning the completion of an assignment.













Any instance of cheating will be investigated by Bellevue College. You will receive a ZERO on the assignment, and that assignment CANNOT BE DROPPED, regardless of any prior stated drop policy. I also reserve the right to give a failing grade for the entire course.

Need help?

- I created a page that lists a few ways to get help from me or classmates: [Ways to get help](#)

Course Summary:

Date	Details	Due
Mon Jan 11, 2021	RQ 25.1-25.3	due by 12pm
Tue Feb 23, 2021	RQ 31.5	due by 11:59pm
Thu Feb 25, 2021	RQ 31.6-31.7	due by 11:59pm
Mon Mar 1, 2021	RQ 32.1-32.3	due by 11:59pm
Mon Mar 15, 2021	RQ 33.1-33.3	due by 11:59pm
Tue Mar 16, 2021	RQ 34.1-34.7	due by 11:59pm
Fri Jun 18, 2021	Lab kit RETURN instructions	to do: 11:59pm
	RQ 14.1-14.4	due by 11:59pm
Wed Sep 29, 2021	Join Slack	due by 11:59pm
Fri Oct 1, 2021	RQ 14.5-14.8	due by 11:59pm
	RQ 25.4-25.5	due by 11:59pm
Tue Oct 5, 2021	WileyPLUS HW 1, Univ grav	due by 11:59pm
	Coulomb lab: Instructions	to do: 11:59pm
Wed Oct 6, 2021	Written HW A	due by 11:59pm
	WileyPLUS HW 1, Univ grav (1 student)	due by 11:59pm
Thu Oct 7, 2021	Coulomb lab: Start Slack discussion	due by 11:59pm
Fri Oct 8, 2021	Coulomb lab: Individual data gathering	due by 11:59pm
	RQ 26.1-26.3	due by 11:59pm
Tue Oct 12, 2021	Winter '22 Student Survey	due by 11:59pm
	WileyPLUS HW 2, Coulomb	due by 11:59pm
Wed Oct 13, 2021	RQ 26.4-26.5	due by 11:59pm
	Midterm 1 info	to do: 11:59pm
Thu Oct 14, 2021	WileyPLUS HW 1, Univ grav (1 student)	due by 11:59pm
	Coulomb lab: Formal lab report	due by 11:59pm
Fri Oct 15, 2021	Written HW B	due by 11:59pm
	P122 Midterm 1 (1 student)	due by 9:30am
	P122 Midterm 1 (1 student)	due by 9:40am
	P122 Midterm 1 (1 student)	due by 12:30pm
Mon Oct 18, 2021	P122 Midterm 1	due by 12:30pm
	P122 Midterm 1 (1 student)	due by 1pm
	P122 Midterm 1: Cheating	due by 11:59pm
	RQ 27.1-27.3	due by 11:59pm
Thu Oct 21, 2021	Coulomb lab: Rate helpfulness of group members	due by 11:59pm
	WileyPLUS HW 3, Electric field	due by 11:59pm
Sun Oct 24, 2021	Electroscope lab: Post to private Slack channel ASAP	due by 11:59pm
	RQ 28.2-28.3	due by 11:59pm
Tue Oct 26, 2021	Electroscope lab: Equipment	due by 11:59pm
Wed Oct 27, 2021	RQ 28.4, 28.6-28-9	due by 11:59pm
Thu Oct 28, 2021	WileyPLUS HW 4, Gauss' law	due by 11:59pm

Fri Oct 29, 2021	 Electroscope lab: Individual data	due by 11:59pm
Sun Oct 31, 2021	 WileyPLUS HW 4, Gauss' law (1 student)	due by 11:59pm
Tue Nov 2, 2021	 RQ Ch 29 and Ch 30	due by 11:59pm
Wed Nov 3, 2021	 Electroscope lab: Lab report	due by 11:59pm
	 WileyPLUS HW 5, Potential	due by 11:59pm
Fri Nov 5, 2021	 Midterm 2 info	to do: 11:59pm
Sat Nov 6, 2021	 Written HW C (E-field and Gauss)	due by 11:59am
Sun Nov 7, 2021	 Written HW D (Potential)	due by 11:59pm
Mon Nov 8, 2021	 P122 Midterm 2	due by 12:30pm
	 P122 Midterm 2 (2 students)	due by 1pm
	 P122 Midterm 2 (1 student)	due by 1:30pm
	 P122 Midterm 2 (1 student)	due by 7:10pm
Fri Nov 12, 2021	 RQ 31.1-31.3	due by 11:59pm
Sun Nov 14, 2021	 WileyPLUS HW 6, Resistance and capacitance	due by 11:59pm