



**PHYS 2400**  
**General Physics II**  
**Summer II, 2021**  
**4 credit hours**

**Instructor:** Dr. Jiang Yu  
**Office:** SC 340  
**Telephone:** 978-665-3380  
**E-mail:** [jyu@fitchburgstate.edu](mailto:jyu@fitchburgstate.edu)  
**Office Hours:** Friday, 8:00-10:00 p.m. ET, Online

**OFFICIAL COURSE DESCRIPTION:**

This second-semester general college physics course consists of studies and applications of wave motions, sound, electricity, magnetism, light and optics. Typical topics include Coulomb's law, electric force and field, potential and capacitance, electric circuits, magnetic force and field, magnetic forces on moving charges, electric induction, laws of reflection and refraction, mirrors and lenses, optical instruments, interference and diffraction of light. Credit cannot be earned for both PHYS 2400 and PHYS 2700. SMT, LAB

For this term, we will concentrate on Electricity/Magnetism and Optics, using algebra/trigonometry.

**COURSE GOALS AND LEARNING OBJECTIVES:**

1. Develop the established physical concepts in electricity, magnetism, and optics.
2. Learn the established theories and principles of electricity, magnetism, and optics.
3. Develop skills in scientific reasoning and problem solving.

**INSTRUCTOR'S ATTENDANCE POLICY:**

Attend required meetings, office hours, and TA sessions. 20% of the course grade.

**TEXTS:**

OpenStax College Physics, <https://openstax.org/books/college-physics/pages/18-introduction-to-electric-charge-and-electric-field>

**ASSESSMENTS/COURSE REQUIREMENTS:**

Daily and weekly assignments with deadlines. 60% of the course grade.  
Labs: 20%

**FINAL PROJECT/EXAM DESCRIPTION:**

None.

**COURSE OUTLINE:**

| Week | Mon  | Tue  | Wed  | Thu   | Fri          |
|------|--|--|--|---|--------------|
| 1    | Introduction   | Assignment 1<br>due 7:00 p.m.<br><br>18.1-18.4<br>Electric charge<br>Conduction<br>Coulomb's Law<br>Electric field | Assignment 2<br>due 7:00 p.m.<br><br>18.4-18.5<br>Electric field<br>lines<br>Uniform electric<br>field           | Assignment 3<br>due 7:00 p.m.<br><br>19.1-19.4<br>Electric Potential<br>of point charges<br>and uniform<br>electric field | Office hours |
| 2    | Assignment 4<br>due 7:00 p.m.<br><br>19.5-19.7<br>Capacitors<br>& dielectrics<br>Energy and<br>series/parallel<br>arrangements | Assignment 5<br>due 7:00 p.m.<br><br>20.1-20.4<br>Electric current,<br>resistance<br>Ohm's law<br>Electric power   | Assignment 6<br>due 7:00 p.m.<br><br>21.1-21.2<br>Resistors in<br>series and<br>parallel<br>Kirchhoff's<br>Rules | Assignment 7<br>due 7:00 p.m.<br><br>21.3-21.4<br>DC circuits<br>containing<br>resistors and<br>capacitors                | Office hours |
| 3    | Assignment 8<br>due 7:00 p.m.<br><br>22.1-22.3, 22.9<br>Magnets<br>Magnetic field<br>B-field lines<br>Ampere's Law             | Assignment 9<br>due 7:00 p.m.<br><br>22.4-22.5<br>Forces on a<br>moving charge<br>in a magnetic<br>field           | Assignment 10<br>due 7:00 p.m.<br><br>22.7, 22.10<br>Magnetic force<br>current-carrying<br>conductors            | Assignment 11<br>due 7:00 p.m.<br><br>23.1-23.2<br>Emf and<br>Magnetic flux   | Office hours |
| 4    | Assignment 12<br>due 7:00 p.m.<br><br>23.3-23.4<br>Faraday's law,<br>Lenz's law, and<br>electromagnetic<br>induction           | Assignment 13<br>due 7:00 p.m.<br><br>23.5, 23.7<br>Motional Emf<br>Generators<br>Transformers                     | Assignment 14<br>due 7:00 p.m.<br><br>23.9-23.10<br>Inductance and<br>RL circuits                                | Assignment 15<br>due 7:00 p.m.<br><br>24.1-24.4<br>Electromagnetic<br>Waves   | Office hours |
| 5    | Assignment 16<br>due 7:00 p.m.<br><br>25.1-25.4<br>Laws of<br>geometric optics<br>Total internal<br>reflection                 | Assignment 17<br>due 7:00 p.m.<br><br>25.6-25.7<br>Image formation<br>by lenses and<br>mirrors                     | Assignment 18<br>due 7:00 p.m.<br><br>27.1-27.3<br>Physical optics<br>and Young's<br>Experiment                  | Assignment 19<br>due 7:00 p.m.<br><br>27.4-27.8<br>Interference,<br>diffraction, and<br>polarization of<br>light          | Office hours |

**FITCHBURG STATE UNIVERSITY UNDERGRADUATE GRADING POLICY**

|                   |                     |                           |
|-------------------|---------------------|---------------------------|
| <b><u>4.0</u></b> | <b><u>A</u></b>     | <b><u>95 – 100</u></b>    |
| <b><u>3.7</u></b> | <b><u>A-</u></b>    | <b><u>92 – 94</u></b>     |
| <b><u>3.5</u></b> | <b><u>A-/B+</u></b> | <b><u>89 - 91</u></b>     |
| <b><u>3.3</u></b> | <b><u>B+</u></b>    | <b><u>86 – 88</u></b>     |
| <b><u>3.0</u></b> | <b><u>B</u></b>     | <b><u>83 – 85</u></b>     |
| <b><u>2.7</u></b> | <b><u>B-</u></b>    | <b><u>80 – 82</u></b>     |
| <b><u>2.5</u></b> | <b><u>B-/C+</u></b> | <b><u>77 – 79</u></b>     |
| <b><u>2.3</u></b> | <b><u>C+</u></b>    | <b><u>74 – 76</u></b>     |
| <b><u>2.0</u></b> | <b><u>C</u></b>     | <b><u>71 – 73</u></b>     |
| <b><u>1.7</u></b> | <b><u>C-</u></b>    | <b><u>69 – 70</u></b>     |
| <b><u>1.5</u></b> | <b><u>C-/D+</u></b> | <b><u>67 – 68</u></b>     |
| <b><u>1.3</u></b> | <b><u>D+</u></b>    | <b><u>64 – 66</u></b>     |
| <b><u>1.0</u></b> | <b><u>D</u></b>     | <b><u>60 – 63</u></b>     |
| <b><u>0.0</u></b> | <b><u>F</u></b>     | <b><u>0 – 59</u></b>      |
| -                 | <b><u>IN</u></b>    | <b><u>Incomplete</u></b>  |
| -                 | <b><u>IP</u></b>    | <b><u>In Progress</u></b> |
| -                 | <b><u>W</u></b>     | <b><u>Withdrawn</u></b>   |

**CLASS POLICIES:**

1. This class relies upon your active-study of the material at your own time/style/pace. Conceptualize the topics of study, using the class resources as frequently as you wish.
2. Engage in class activities, discuss the concepts and methods with your classmates, and seek help from your TA and professor.
3. Late homework will earn no credit.

**POLICY ON DISABILITY**

If you need course adaptations or accommodations because of a disability, if you have emergency medication information, or if you need special arrangements in case the building must be evacuated, please make an appointment at the beginning of the course to talk with me. It is important that the issues relating to disabilities be discussed with me as soon as possible.

**GRADE APPEAL**

If you disagree with the evaluation of your work or believe an improper grade has been assigned, an appeal may be followed. Please discuss the matter with the instructor and refer to the Fitchburg State University Grade Appeal Policy in the university catalog.

**ACADEMIC INTEGRITY POLICY**

The faculty at Fitchburg State University require that work submitted in fulfillment of course requirements will be solely that of the individual candidate and all other sources will be cited

appropriately. University Academic Integrity Policy, as outlined in the University Catalogue, will be strictly adhered to.

## **DISTANCE LEARNING & EXTENDED CAMPUS LIBRARY SERVICES**

The Gallucci-Cirio Library at Fitchburg State University provides a full range of library services including borrowing privileges; document delivery (books and articles mailed to your home); Interlibrary Loan; reference assistance via: phone, email, IM, Blackboard's Collaboration and Elluminate tools, Skype and in-person; library instruction; research help and more. Any questions relating to library services should be directed to the Linda LeBlanc, Access Services Librarian, at 978-665-3062 or [dllibrary@fitchburgstate.edu](mailto:dllibrary@fitchburgstate.edu). There is also a special section for Distance Learning and Extended Campus Services at <http://fitchburgstate.libguides.com/dlservices> outlining the wide range of services available to you and how to access them.