San José State University
Department of Physics and Astronomy
PHYS 51, Electricity and Magnetism
Spring 2015

Course and Contact Information

Instructor:	Dr. Ehsan Khatami
Office Location:	SCI 312
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Email:	ehsan.khatami@sjsu.edu
Office Hours:	Tuesdays and Wednesdays 10:30-11:30am and by appointment at other times
Class Time:	Mondays and Wednesdays 4:30-5:45pm
Classroom:	SCI 311
Prerequisites:	PHYS 50 and MATH 31 both with grades C- or higher
Final Exam:	Thursday, May 21, 2:45-5:00pm

Course Description

This course offers a calculus-based treatment of electric charges and fields, magnetic fields, fundamental electric components and circuits, and electromagnetic waves.

Course Goals and Learning Outcomes

The goals of this course are:

1. Gain basic knowledge of concepts, general principles, and techniques in electricity and magnetism, including charge, electric field, electric potential, magnetic field, fundamental components of circuits, and electromagnetic waves.
2. Ability to ask physical questions when it comes to topics related to electromagnetism, and to obtain solutions to problems through reasoning (qualitative and quantitative) and experimental investigation.

3. Ability to understand the connections and applications of electromagnetism to other fields and disciplines.

Course Learning Outcomes (CLO):

Upon successful completion of this course, students will be able to

1. calculate electric field and electric potential from knowledge of a given charge distribution,
2. calculate magnetic field from knowledge of electric current source and voltage induced in a system due to a time-dependent magnetic flux,
3. analyze electric circuits containing resistors, capacitors, inductors, with batteries or AC sources,
4. understand the properties of an electromagnetic wave containing electric and magnetic fields.

Textbook:

The required textbook is *"University Physics"*, Volume Two, 13th Edition, **Young and Freedman**, Addison-Wesley. Chapters to be covered: 21-32

Library Liaison:

Physics & Astronomy library liaison: Jennifer Dinalo, jennifer.dinalo@sjsu.edu
See also Physics & Astronomy LibGuide at http://libguides.sjsu.edu/physics_astronomy.

Classroom Protocol

Participation and attendance are crucial for success in this course. Please turn off your cell phones or put them on silent mode and avoid texting during lecture. Also, to avoid causing any distraction for yourself or for your fellow classmates, please restrict the use of personal laptops to matters related to the course during class hours and keep away from social media.

Course Requirements and Assignments:

There will be occasional in-class quizzes (I will let you know about it before hand in the class) and in-class group assignments to motivate studying on your own as well as collaboration in solving problems. **Homework assignments will be posted usually every Wednesday and are due the next Wednesday before the class starts.**

Some assignments are paper based and some are online through masteringphysics.com website. Students are required to register online to access the homework website. If you buy a new book, it comes with a package called Mastering Physics, Student Access Kit. Follow the instruction inside the package for registration. You also need the following:

- Your personal access code which is beneath the pull-tab inside your Access Kit.
- A course ID, which is **MPKHATAMI53309**
- A valid email address

If you did not buy a new book, you can purchase an access code online with an e-textbook (lasts 24 months) or without an e-textbook (lasts 24 months). For this option follow these steps: Go to the site http://www.masteringphysics.com, click on the picture of the front page of our textbook. Then, choose whether or not you would like the e-textbook. Once you have chosen this, register and pay. Note that you may already have access to Mastering Physics. If this is the case, you just need to enroll into the course using the Course ID above.

SJSU classes are designed such that in order to be successful, it is expected that students will spend a minimum of forty-five hours for each unit of credit (normally three hours per unit per week), including preparing for class, participating in course activities, completing assignments, and so on. More details about student workload can be found in University Policy S12-3 at http://www.sjsu.edu/senate/docs/S12-3.pdf.

Examinations:

There are two midterms and a final comprehensive exam:
Midterm 1 (tentative): Wednesday, March 4th at 4:30pm in SCI 311 - Chapters 21, 22, 23, and 24
Midterm 2 (tentative): Monday, April 20th at 4:30pm in SCI 311 - Chapters 25, 26, 27, and 28
Final exam: Thursday, May 21, at 2:45-5:00pm in SCI 311

There will be no make-up exams. All exams are closed book and closed notes. Formula sheets may be allowed for certain exams as directed by the instructor in the class.

Grading Policy

The overall grade for this course will be evaluated based on the following table:

Laboratory:	15%
Homework:	15%
Quizzes and in-class problem solving:	10%
Midterm 1:	15%
Midterm 2:	20%
Final exam:	25%

The letter-grade assignment is:

Grade Percentage	Letter Grade
97-100	A+
93-96	A
90-92	A-
87-89	B+
83-86	B
80-82	B-
77-79	C+
73-76	C
70-72	C-
67-69	D+
63-66	D
60-62	D-
0-59	F

Faculty Web Page and MYSJSU Messaging

Course materials such as syllabus, handouts, notes, assignment instructions, etc. can be found on the Canvas learning management system course website and soon on my faculty web page at http://www.sjsu.edu/people/ehsan.khatami. You are responsible for regularly checking with the messaging system through Canvas or MySJSU to learn of any updates.

The Canvas online course management system will be an important part of this course. Your enrollment in the course gives you access to the site - you are responsible for regularly checking Canvas for further information and updates, including to the syllabus. Canvas is accessed via http://sjsu.instructure.com, and more information and help can be found at http://www.sjsu.edu/at/ec/canvas/student_resources/index.html.

You are responsible for regularly checking for course news sent to your Canvas email. You may also want to make use of the Canvas Notifications system to receive updates about upcoming deadlines, etc. **Only emails sent through Canvas will be responded to, typically within one business day.** The use of direct email should be reserved for urgent matters only.

University Policies

General Expectations, Rights and Responsibilities of the Student

As members of the academic community, students accept both the rights and responsibilities incumbent upon all members of the institution. Students are encouraged to familiarize themselves with SJSUs policies and practices pertaining to the procedures to follow if and when questions or concerns about a class arises. See University Policy S905 at http://www.sjsu.edu/senate/docs/S90-5.pdf. More detailed information on a variety of related topics is available in the SJSU catalog, at http://info.sjsu.edu/web-dbgen/narr/catalog/rec-12234.12506.html. In general, it is recommended that students begin by seeking clarification or discussing concerns with their

instructor. If such conversation is not possible, or if it does not serve to address the issue, it is recommended that the student contact the Department Chair as a next step.

Dropping and Adding

General info

Students are responsible for understanding the policies and procedures about add/drop, grade forgiveness, etc. Refer to the current semesters Catalog Policies section at http://info.sjsu.edu/static/catalog/policies.html. Add/drop deadlines can be found on the current academic year calendars document on the Academic Calendars webpage at http://www.sjsu.edu/provost/services/academic_calendars/. The Late Drop Policy is available at http://www.sjsu.edu/aars/policies/latedrops/policy/. Students should be aware of the current deadlines and penalties for dropping classes.

Information about the latest changes and news is available at the Advising Hub at http://www.sjsu.edu/advising/.

Adding Procedure

f you intend to add this course (lecture and lab), you need to visit Physics and Astronomy Department website (http://www.physics.sjsu.edu) in which appropriate instruction is posted in the front page.

Dropping policy

If you decide to drop this class, you must drop lecture and lab. It is the policy of the Physics and Astronomy Department that these two classes must be taken during the same semester.

Consent for Recording of Class and Public Sharing of Instructor Material

University Policy S12-7, http://www.sjsu.edu/senate/docs/S12-7.pdf, requires students to obtain instructors permission to record the course.

- "Common courtesy and professional behavior dictate that you notify someone when you are recording him/her. You must obtain the instructors permission to make audio or video recordings in this class. Such permission allows the recordings to be used for your private, study purposes only. The recordings are the intellectual property of the instructor; you have not been given any rights to reproduce or distribute the material."

  It is suggested that the greensheet include the instructors process for granting permission, whether in writing or orally and whether for the whole semester or on a class by class basis.

  In classes where active participation of students or guests may be on the recording, permission of those students or guests should be obtained as well.

- "Course material developed by the instructor is the intellectual property of the instructor and cannot be shared publicly without his/her approval. You may not publicly share or upload instructor generated material for this course such as exam questions, lecture notes, or homework solutions without instructor consent."

Academic integrity

Your commitment as a student to learning is evidenced by your enrollment at San Jose State University. The University Academic Integrity Policy S07-2 at http://www.sjsu.edu/senate/docs/S07-2.pdf requires you to be honest in all your academic course work. Faculty members are required to report all infractions to the office of Student Conduct and Ethical Development. The Student Conduct and Ethical Development website is available at http://www.sjsu.edu/studentconduct/.

Instances of academic dishonesty will not be tolerated. Cheating on exams or plagiarism (presenting the work of another as your own, or the use of another persons ideas without giving proper credit) will result in a failing grade and sanctions by the University. For this class, all assignments are to be completed by the individual student unless otherwise specified. If you would like to include your assignment or any material you have submitted, or plan to submit for another class, please note that SJSUs Academic Integrity Policy S07-2 requires approval of instructors.

Campus Policy in Compliance with the American Disabilities Act

If you need course adaptations or accommodations because of a disability, or if you need to make special arrangements in case the building must be evacuated, please make an appointment with me as soon as possible, or see me during office hours. Presidential Directive 97-03 at http://www.sjsu.edu/president/docs/directives/PD_1997-03.pdf requires that students with disabilities requesting accommodations must register with the Accessible Education Center at http://www.sjsu.edu/aec/ to establish a record of their disability.

Accommodation to Students' Religious Holidays

San Jos State University shall provide accommodation on any graded class work or activities for students wishing to observe religious holidays when such observances require students to be absent from class. It is the responsibility of the student to inform the instructor, in writing, about such holidays before the add deadline at the start of each semester. If such holidays occur before the add deadline, the student must notify the instructor, in writing, at least three days before the date that he/she will be absent. It is the responsibility of the instructor to make every reasonable effort to honor the student request without penalty, and of the student to make up the work missed. See University Policy S14-7 at http://www.sjsu.edu/senate/docs/S14-7.pdf.

Student Technology Resources

Computers for student use are available in the Academic Success Center at http://www.sjsu.edu/at/asc/ located on the 1st floor of Clark Hall and in the Associated Students Lab on the 2nd floor of the Student Union. Additional computer labs may be available in certain departments/colleges. Computers are also available in the Martin Luther King Library.

SJSU Peer Connections

For brief information about Peer Connections, see Canvas page here: https://sjsu.instructure.com/courses/1012117/assignments/syllabus#peer, or the Peer Connections website at http://peerconnections.sjsu.edu.

SJSU Writing Center

The SJSU Writing Center is located in Clark Hall, Suite 126. All Writing Specialists have gone through a rigorous hiring process, and they are well trained to assist all students at all levels within all disciplines to become better writers. In addition to one-on-one tutoring services, the Writing Center also offers workshops every semester on a variety of writing topics. To make an appointment or to refer to the numerous online resources offered through the Writing Center, visit the Writing Center website at http://www.sjsu.edu/writingcenter. For additional resources and updated information, follow the Writing Center on Twitter and become a fan of the SJSU Writing Center on Facebook.

SJSU Counseling Services

For brief information about the Counseling Center, see Canvas page here: https://sjsu.instructure.com/courses/1012117/assignments/syllabus#counsel, or the Counseling Services website at http://www.sjsu.edu/counseling.

Course Schedule (tentative)

Week	Dates	Readings
Week 1	Mon Jan 26	Ch. 21
	Wed Jan 28	Ch. 21
Week 2	Mon Feb 2	Ch. 21
	Wed Feb 4	Ch. 21/22
Week 3	Mon Feb 9	Ch. 22
	Wed Feb 11	Ch. 22
Week 4	Mon Feb 16	Ch. 23
	Wed Feb 18	Ch. 23
Week 5	Mon Feb 23	Ch. 23
	Wed Feb 25	Ch. 24
Week 6	Mon Mar 2	Ch. 24
	Wed Mar 4	Midterm 1 (Chs. 21, 22, 23, and 24)
Week 7	Mon Mar 9	Ch. 25
	Wed Mar 11	Ch. 25/26
Week 8	Mon Mar 16	Ch. 26
	Wed Mar 18	Ch. 26
Week 9	Mon Mar 30	Ch. 27
	Wed Apr 1	Ch. 27
Week 10	Mon Apr 6	Ch. 27
	Wed Apr 8	Ch. 28
Week 11	Mon Apr 13	Ch. 28
	Wed Apr 15	Ch. 28
Week 12	Mon Apr 20	Midterm 2 (Chs. 25, 26, 27, and 28)
	Wed Apr 22	Ch. 29
Week 13	Mon Apr 27	Ch. 29
	Wed Apr 29	Ch. 29/30
Week 14	Mon May 4	Ch. 30
	Wed May 6	Ch. 31
Week 15	Mon May 11	Ch. 31
	Wed May 13	Ch. 32
–	**Thu, May 21**	Final (2:45-5:00pm)