PHYS 305 - Modern Physics (Spring 2016)
Department of Physics
Southern Illinois University Carbondale

Instructor: Poopalasingam Sivakumar, Ph.D
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Office: 476, Neckers
Office Phone: (618) 453 5257
Lecture Times/Location: TR 2:00 pm - 3:15 pm, Neckers 0410
Office Hours: T/R 3:30 pm - 5:30 pm and F 1:00 pm – 3:00 pm

COURSE WEBSITE
https://online.siu.edu/ and university email will be used as method of contacting students. Please visit course website (https://online.siu.edu/), sign in, and follow the links to the PHYS 305 site and check your university email and course website periodically for:

- Reading Materials
- Important announcements.
- Homework Assignments.
- Others.

TEXTBOOKS

- Modern Physics by Raymond A. Serway, Clement J. Moses, and Curt A. Moyer.
- Secondary Texts/References:
  - Modern Physics by Kenneth Krane.

COURSE DESCRIPTION

Modern Physics is an undergraduate level course which is intended for students, who have already studied introductory level physics. This course provides a basic introduction to better understanding of special relativity, Quantum mechanics, and applications of quantum theory to: atomic and molecular structure; lasers, condensed matter physics; nuclear and particle physics. This course will cover Special Relativity, Quantum Theory, Quantum Mechanics, Statistical Physics, Atomic and Molecular structure, Solid State, Nuclear Physics, and few more.

PRE-REQUISITE

PHYS 205A and B with a grade of C or above, or PHYS 203A and PHYS 203B both with a grade of C or above.

TOPICS COVERED

The order of topics can vary based on the needs of the class and depending on the students progress.


7. Statistical Physics: Optional.


TEACHING METHODS

A variety of models of instruction will be included in the delivery of the content of this course, but not limited to:

- Interactive Lectures.
- Small Group Discussion and Activities.
- Problem Solving.
- Demonstrations.

The following general education goals and objective will be addressed by this course:

- Effective communication through speaking and writing.
- Critical thinking and problem solving.
- Incorporate computational intelligence and knowledge for solving problems.

METHODS OF EVALUATION

Homework for each chapter of the course will be assigned. It will be assessed on a weekly basis. These assignments can take in the form of qualitative and/or quantitative problem solving, reading and summarization, or similar assignments designed to prepare the student for an upcoming class. Homework is due one week after being assigned. Post-deadline of homework will not be accepted. There will be surprise short quizzes at the begin or end of class. The student will also be required to take mid-terms and end of term exams. The exams consist of qualitative and quantitative problems.
can be similar to those discussed in class and those assigned for homework or quizzes. The homework, quizzes, midterm and final examination grades collectively determine the final course grade according to the following formula:

- **Total Homework**: 20%
- **Total Quizzes**: 15%
- **Midterm Exam I**: 20% - Tentative Date: Tuesday, February 23, 2016
- **Midterm Exam II**: 20% - Tentative Date: Tuesday, April 12, 2016
- **Final Exam**: 25%

Failure to take any examination or quiz will result in a grade of zero. Make-up examinations will be offered when justified in writing. It is entirely the responsibility of the student to arrange any make-up exams with the instructor. Final grades will be assigned according to the following schedule:

- **A**: \( \geq 90\% 
- **B**: 75 - 89\%
- **C**: 65 - 74\%
- **D**: 50 - 64\%
- **F**: less than 50\%

**HANDICAPPED**

If you have a specific disability that qualifies you for academic accommodations, please notify the instructor and contact **Disability Support Service**.

Woody Hall B150, Mail Code 4705 900 South Normal Avenue, Carbondale, Illinois 62901 Phone: (618) 453-5738, Fax: (618) 453-5700
IMPORTANT DATES *
Semester Class Begins ......................................................... 01/19/2016
Last day to add a class (without instructor permission) ............... 01/24/2016
Last day to withdraw completely and receive a 100% refund ........ 01/31/2016
Last day to drop a course using SalukiNet ................................ 04/03/2016
Last day to file diploma application (for name to appear in Commencement program) ................................................. 02/12/2016
Final examinations ................................................................... 05/09–05/13/2016

Note: For outreach, internet, and short course drop add dates, visit Registrar’s Academic webpage: http://registrar.siu.edu/

SPRING SEMESTER HOLIDAYS
Martin Luther King, Jr.’s Birthday Holiday 01/18/2016
Spring Break 03/12–03/20/2016

WITHDRAWAL POLICY – Undergraduate only
Students who officially register for a session may not withdraw merely by the stopping of attendance. An official withdrawal form needs to be initiated by the student and processed by the University. For the proper procedures to follow when dropping courses and when withdrawing from the University, please visit http://registrar.siu.edu/catalog/undergradcatalog.html

INCOMPLETE POLICY – Undergraduate only
An INC is assigned when, for reasons beyond their control, students engaged in passing work are unable to complete all class assignments. An INC must be changed to a completed grade within one semester following the term in which the course was taken, or graduation, whichever occurs first. Should the student fail to complete the course within the time period designated, that is, by no later than the end of the semester following the term in which the course was taken, or graduation, whichever occurs first, the incomplete will be converted to a grade of F and the grade will be computed in the student’s grade point average. For more information please visit: http://registrar.siu.edu/grades/incomplete.html

REPEAT POLICY
An undergraduate student may, for the purpose of raising a grade, enroll in a course for credit no more than two times (two total enrollments) unless otherwise noted in the course description. For students receiving a letter grade of A,B,C,D, or F, the course repetition must occur at Southern Illinois University Carbondale. Only the most recent (last) grade will be calculated in the overall GPA and count toward hours earned. See fall policy at http://registrar.siu.edu/catalog/undergradcatalog.html

GRADUATE POLICIES
Graduate policies often vary from Undergraduate policies. To view the applicable policies for graduate students, please visit http://gradschool.siu.edu/about/us/grad-catalog/index.html

DISABILITY POLICY
Disability Support Services provides the required academic and programmatic support services to students with permanent and temporary disabilities. DSS provides centralized coordination and referral services. To utilize DSS services, students must come to the DSS to open cases. The process involves interviews, reviews of student-supplied documentation, and completion of Disability Accommodation Agreements. http://disabilityservices.siu.edu/

PLAGIARISM
Student Conduct Code http://srr.siu.edu/student_conduct_code/

MORRIS LIBRARY HOURS
http://www.lib.siu.edu/about

SAFETY AWARENESS FACTS AND EDUCATION
Title IX makes it clear that violence and harassment based on sex and gender is a Civil Rights offense subject to the same kinds of accountability and the same kinds of support applied to offenses against other protected categories such as race, national origin, etc. If you or someone you know has been harassed or assaulted, you can find the appropriate resources here: http://safe.siu.edu

SALUKI CARES
The purpose of Saluki Cares is to develop, facilitate and coordinate a university-wide program of care and support for students in any type of distress—physical, emotional, financial, or personal. By working closely with faculty, staff, students and their families, SIU will continue to display a culture of care and demonstrate to our students and their families that they are an important part of the community. For Information on Saluki Cares: (618) 453-5714, or siukares@siu.edu, http://salukicares.siu.edu/index.html

EMERGENCY PROCEDURES
Southern Illinois University Carbondale is committed to providing a safe and healthy environment for study and work. We ask that you become familiar with the SIU Emergency Response Plan and Building Emergency Response Team (BERT) programs. Emergency response information is available on posters in buildings on campus, available on BERT’s website at www.bert.siu.edu. Department of Safety’s website at www.dps.siu.edu (disaster drop down) and the Emergency Response Guideline pamphlet. Instructors will provide guidance and direction to students in the classroom in the event of an emergency affecting your location. It is important that you follow these instructions and stay with your instructor during an evacuation or sheltering emergency.

INCLUSIVE EXCELLENCE
SIU contains people from all walks of life: from many different cultures and sub-cultures, and representing all strata of society, nationalities, ethnicities, lifestyles, and affiliations. Learning from and working with people who differ is an important part of education as well as an essential preparation for any career. For more information please visit: http://www.inclusiveexcellence.siu.edu/

LEARNING AND SUPPORT SERVICES
Help is within reach. Learning support services offers free tutoring on campus and math labs. To find more information please visit the Center for Learning and Support Services website:
Tutoring: http://tutorial.siu.edu/
Math Labs http://math.siu.edu/courses/course-help.php

WRITING CENTER
The Writing Center offers free tutoring services to all SIU students and faculty. To find a Center or Schedule an appointment please visit http://write.siu.edu/

AFFIRMATIVE ACTION & EQUAL OPPORTUNITY
Our office’s main focus is to ensure that the university complies with federal and state equity policies and handles reporting and investigating of discrimination cases. For more information visit: http://diversity.siu.edu/

Additional Resources Available:

SALUKINET: https://salukinet.siu.edu/cp/home/displaylogin

ADVICEMENT: http://advisement.siu.edu/

PROVOST & VICE CHANCELLOR: http://pvcaa.siu.edu/

SIU ONLINE: http://online.siu.edu/