COURSE SYLLABUS

Computational Physics
Course ID: C110
Instructor: Dr. Lisa Thompson
Email: lisa.thompson@university.edu
Office Hours: Monday 3:00 PM - 5:00 PM, Wednesday 11:00 AM - 1:00 PM
Department: Physics

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COURSE OVERVIEW

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Numerical methods and computational techniques for solving physics problems using programming and simulation.

This course is designed to provide students with a comprehensive understanding of the fundamental concepts, theories, and pra

The course emphasizes critical thinking, problem-solving, and the application of theoretical concepts to real-world scenarios. Stu

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LEARNING OUTCOMES

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

1. Demonstrate a comprehensive understanding of fundamental concepts and principles in the field
2. Apply theoretical knowledge to solve practical problems and analyze real-world scenarios
3. Critically evaluate research literature and current developments in the field
4. Design and implement solutions using appropriate methodologies and tools
5. Communicate complex ideas effectively through written reports and oral presentations
6. Work collaboratively in teams to complete complex projects
7. Understand ethical considerations and professional responsibilities in the field

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REQUIRED MATERIALS

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Textbooks:
- Primary Textbook: "Fundamentals of Computational" by Author Name (Latest Edition)
- Supplementary Text: "Advanced Topics in Computational" by Author Name
- Additional readings will be provided through the course management system

Software and Tools:
- Required software packages will be specified in the first week
- Access to online resources and databases
- Programming environment (if applicable)

Other Materials:
- Scientific calculator (if applicable)
- Laboratory notebook (if applicable)
- Access to course learning management system

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ASSESSMENT BREAKDOWN

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The final grade will be determined based on the following components:

1. Assignments (40%)
   - Four major assignments throughout the semester
   - Each assignment will assess different aspects of the course material
   - Late submissions will be penalized 10% per day, up to 3 days maximum

2. Midterm Examination (25%)
   - Comprehensive examination covering material from weeks 1-6
   - Format: Combination of multiple choice, short answer, and problem-solving questions
   - Date: Week 7 (specific date to be announced)

3. Final Examination (25%)
   - Cumulative examination covering all course material
   - Format: Similar to midterm with emphasis on integration of concepts
   - Date: Scheduled during final examination period

4. Class Participation and Quizzes (10%)
   - Regular attendance and active participation in class discussions
   - Weekly quizzes to assess understanding of reading materials
   - In-class activities and group discussions

Grading Scale:
A: 90-100%
B: 80-89%
C: 70-79%
D: 60-69%
F: Below 60%

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ACADEMIC POLICIES

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Attendance Policy:
Regular attendance is expected and essential for success in this course. Students are responsible for all material covered in cla

Late Submission Policy:
Assignments submitted after the deadline will incur a 10% penalty per day, up to a maximum of 3 days. After 3 days, assignmen

Academic Integrity:
All work submitted must be your own. Plagiarism, cheating, or any form of academic dishonesty will result in a failing grade for t

Accommodations:
Students with documented disabilities who require accommodations should contact the Office of Disability Services and inform t

Communication:
Students are expected to check the course learning management system regularly for announcements, assignments, and cours

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WEEK-BY-WEEK TOPICS

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Week 1: Introduction and Foundations
- Course overview and expectations
- Fundamental concepts and terminology
- Historical development and current state of the field
- Introduction to course tools and resources

Week 2: Core Principles and Theory
- Theoretical foundations
- Key principles and their applications
- Mathematical and conceptual frameworks
- Problem-solving approaches

Week 3: Advanced Concepts I
- Building upon foundational knowledge
- Introduction to more complex topics
- Case studies and examples
- First assignment distributed

Week 4: Advanced Concepts II
- Continuation of advanced topics
- Integration of concepts
- Practical applications
- Guest lecture (if applicable)

Week 5: Specialized Topics
- Focus on specific areas of interest
- Current research and developments
- Industry applications
- Assignment 1 due

Week 6: Review and Integration
- Review of weeks 1-5
- Integration of concepts
- Problem-solving sessions
- Preparation for midterm examination

Week 7: Midterm Examination
- Midterm examination (covers weeks 1-6)
- Post-exam review and discussion
- Introduction to new topics
- Assignment 2 distributed

Week 8: Advanced Applications
- Application of learned concepts
- Real-world case studies

- Project work begins
- Group project formation

Week 9: Research and Current Developments
- Current research in the field
- Literature review techniques
- Critical analysis of research papers
- Assignment 2 due

Week 10: Project Development
- Continued work on projects
- Individual consultations
- Peer review activities
- Assignment 3 distributed

Week 11: Synthesis and Integration
- Bringing together all course concepts
- Advanced problem-solving
- Project presentations begin
- Assignment 3 due

Week 12: Final Review and Project Completion
- Final project presentations
- Comprehensive course review
- Preparation for final examination
- Assignment 4 due
- Course wrap-up and evaluation

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ADDITIONAL INFORMATION

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Course Schedule:
Classes meet twice per week for 90 minutes each session. Laboratory sessions (if applicable) meet once per week for 3 hours.

Office Hours:
Monday 3:00 PM - 5:00 PM, Wednesday 11:00 AM - 1:00 PM

Contact Information:
Instructor: Dr. Lisa Thompson
Email: lisa.thompson@university.edu
Office: [Office Location - TBD]

Important Dates:
- Assignment 1 Due: Week 5
- Midterm Examination: Week 7
- Assignment 2 Due: Week 9
- Assignment 3 Due: Week 11
- Assignment 4 Due: Week 12

- Final Examination: As scheduled by university

This syllabus is subject to change. Any modifications will be announced in class and posted on the course management system.

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END OF SYLLABUS

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