**Course Description**

Motivation (Black body radiation, photoelectric effect, Compton Scattering, and line spectra, etc.), Postulates, Time-independent Schrodinger equation; Analysis of One-dimensional System: Simple Harmonic Oscillators, Potential Barriers and wells, Identical particles; quantum mechanics in three-dimensions; Quantum Mechanical Measurements, and Numerical solution Methods for Schrodinger equation.

**Course Purpose**

The course is to help students and prospective teachers to

1. Extract information from quantum mechanics text through analytic reading.
2. Calculate and interpret the results of various quantum mechanics problems.
3. Solve real problems using quantum mechanics principles.
4. Develop models of quantum mechanics problems.
5. Collaborate effectively with team members.
6. Solve problems through skilled time management.
7. Recognize and apply principles in the main area of quantum mechanics.

**F=Florida Educator Accomplished Practices Standards (FEAPS)
I=Interstate New Teacher Assessment and Support Consortium Standards (INTASC)
(K)=Knowledge (S)=Skill (D)=Disposition**
**State and National Professional Standards for Training**

In response to Florida’s demand for accountability from their public schools, the 1997 State Legislature created the Florida System of School Improvement and Accountability, which is designed to improve student performance. The Physics Department, in response to this initiative, strives to make a positive impact by ensuring that it produces high quality professional specialists in physics education who are committed to improving student performance and who will assist students in meeting the Florida Sunshine State Standards. The Physics Department Physics Education program endeavors to provide a quality program through the implementation of an integrated curriculum based on the guidelines and competencies aligned with the Florida Sunshine State Standards, Florida Accomplished Practices, Florida Adopted Subject Area Competencies, and those guidelines and standards from other learned societies and professional organizations.

The Conceptual Framework in the Professional Education Unit at Florida A&M University’s College of Education is an integrated approach to providing educational experiences that result in exemplary professional educators. The Framework is comprised of many activities and themes with the mission of developing high quality classroom teachers, administrators and support personnel. The term “exemplary” refers to the kind of graduates the unit strives to produce. Figure 1 provides a diagram of the Exemplary Professional Conceptual Framework:

The Unit’s Conceptual Framework is consistent with and complements the College of Education and the University’s Mission statements. The shared vision of the Professional Education Unit is to prepare exemplary professionals who are able to go into the educational institutions of Florida, the nation and the world armed with knowledge, skills, and dispositions that will facilitate learning for students, support interactions and partnerships with community stakeholders, and engender on-going professional development for themselves and others. The conceptual framework provides direction for programs, courses, teaching, candidate performance, scholarship, service, and Unit accountability.

The Physics Education Program at Florida A&M University is committed to training professionals who have expertise in the depth and diversity of both physics and education.

**Conceptual Framework**

The Conceptual Framework in the Professional Education Unit (PEU) at Florida A&M University is an integrated approach to providing educational experiences that result in exemplary professional educators. The Framework is comprised of six themes with the mission of developing high quality classroom teachers, administrators and support personnel. The term “exemplary” refers to the kind of graduates the PEU strives to produce. The figure below provides a diagram of the Exemplary Professional Conceptual Framework.

<table>
<thead>
<tr>
<th>CRITICAL THINKING</th>
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<tbody>
<tr>
<td><strong>CF4</strong></td>
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<tr>
<td><strong>Through this focal area, the FAMU professional education candidate will:</strong></td>
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<tr>
<td>CF: 4.5 (S)</td>
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<tr>
<th>PROFESSIONALISM</th>
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<tbody>
<tr>
<td><strong>CF 5</strong></td>
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<tr>
<td><strong>Through this focal area, the FAMU professional education candidate will:</strong></td>
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<tr>
<td>CF: 5.1 (K)</td>
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F=Florida Educator Accomplished Practices Standards (FEAPS)
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(K)=Knowledge (S)=Skill (D)=Disposition
**NATIONAL AND STATE STANDARDS AddressED IN THE COURSE**

**Interstate New Teacher Assessment and Support Consortium (INTASC) Standards**

**Standard 1: Subject Matter:** The teacher understands the central concepts, tools of inquiry, and structures of the discipline(s) he or she teaches and can create learning experiences that make these aspects of subject matter meaningful for students.

1.10 Knowledge
1.12 The teacher understands how students' conceptual frameworks and their misconceptions for an area of knowledge can influence their learning.

1.13 The teacher can relate his/her disciplinary knowledge to other subject areas.

1.20 Dispositions
1.24 The teacher is committed to continuous learning and engages in professional discourse about subject matter knowledge and children's learning of the discipline.

1.30 Performances
1.35 The teacher develops and uses curricula that encourage students to see, question, and interpret ideas from diverse perspectives.

**Standard 4: Instructional Strategies:** The teacher understands and uses a variety of instructional strategies to encourage students' development of critical thinking, problem solving, and performance skills.

4.10 Knowledge
4.11 The teacher understands the cognitive processes associated with various kinds of learning (e.g. critical and creative thinking, problem structuring and problem solving, invention, memorization and recall) and how these processes can be stimulated.

4.12 The teacher understands the principles and techniques, along with advantages and limitations, associated with various instructional strategies (e.g. cooperative learning, direct instruction, discovery learning, whole group discussion, independent study, interdisciplinary instruction).

4.13 The teacher knows how to enhance learning through the use of a wide variety of materials as well as human and technological resources (e.g. computers, audio-visual technologies, videotapes and discs, local experts, primary documents and artifacts, texts, reference books, literature, and other print resources).

4.20 Dispositions
4.21 The teacher values the development of students' critical thinking, independent problem solving, and performance capabilities.

4.23 The teacher values the use of educational technology in the teaching and learning process.

4.30 Performances
4.31 The teacher carefully evaluates how to achieve learning goals, choosing alternative teaching strategies and materials to achieve different instructional purposes and to meet student needs (e.g. developmental stages, prior knowledge, learning styles, and interests).

4.33 The teacher constantly monitors and adjusts strategies in response to learner feedback.

4.34 The teacher varies his or her role in the instructional process (e.g. instructor, facilitator, coach, audience) in relation to the content and purposes of instruction and the needs of students.

4.36 The teacher uses educational technology to broaden student knowledge about technology, to deliver instruction to students at different levels and paces, and for advanced levels of learning.

F=Florida Educator Accomplished Practices Standards (FEAPS)
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(K)=Knowledge  (S)=Skill  (D)=Disposition
Standard 8: Assessment: The teacher understands and uses formal and informal assessment strategies to evaluate and ensure the continuous intellectual, social and physical development of the learner.

8.10 Knowledge
8.11 The teacher understands the characteristics, uses, advantages, and limitations of different types of assessments (e.g. criterion-referenced and norm-referenced instruments, traditional standardized and performance-based tests, observation systems, and assessments of student work) for evaluating how students learn, what they know and are able to do, and what kinds of experiences and technology will support their further growth and development.

8.12 The teacher knows how to select, construct, and use assessment strategies, technology and instruments appropriate to the learning outcomes being evaluated and to other diagnostic purposes.

8.13 The teacher understands measurement theory and assessment-related issues, such as validity, reliability, bias, and scoring concerns.

8.20 Dispositions
8.21 The teacher values ongoing assessment as essential to the instructional process and recognizes that many different assessment strategies, accurately and systematically used, are necessary for monitoring and promoting student learning.

8.22 The teacher is committed to using assessment to identify student strengths and promote student growth rather than to deny students access to learning opportunities.

8.30 Performance
8.31 The teacher appropriately uses a variety of formal and informal assessment techniques (e.g. observation, portfolios of student work, teacher-made tests, performance tasks, projects, student self-assessments, peer assessment, and standardized tests) to enhance her or his knowledge of learners, evaluate student's progress and performances, and modify teaching and learning strategies.

8.32 The teacher solicits and uses information about students' experiences, learning behavior, needs, and progress from parents, other colleagues, and the students themselves.

8.33 The teacher uses assessment strategies to involve learners in self-assessment activities, to help them become aware of their strengths and needs, and to encourage them to set personal goals for learning.

8.34 The teacher evaluates the effect of class activities on both individuals and the class as a whole, collecting information through observation of classroom interactions, questioning, and analysis of student work.

8.35 The teacher monitors her/his own teaching strategies and behavior in relation to student success, modifying plans and instructional approaches accordingly.

8.36 The teacher maintains useful records of student work and performance and can communicate student progress knowledgeably and responsibly, based on appropriate indicators, to students, parents/guardians, and other colleagues.

Standard 9: Reflection and Professional Development: The teacher is a reflective practitioner who continually evaluates the effects of her/his choices and actions on others (students, parents, and other professionals in the learning community) and who actively seeks out opportunities to grow professionally.

9.10 Knowledge
9.11 The teacher understands the historical and philosophical foundations of education.

9.12 The teacher understands methods of inquiry that provide him/her with a variety of self-assessment and problem solving strategies for reflecting on his/her practice, its influences on students' growth and learning, and the complex interactions between them.

9.13 The teacher is aware of major areas of research on teaching and of resources available for professional learning (e.g. professional literature, colleagues, professional associations, professional development activities).

9.20 Dispositions
F=Florida Educator Accomplished Practices Standards (FEAPS)
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9.21 The teacher values critical thinking and self-directed learning as habits of mind.

9.22 The teacher is committed to reflection, assessment, and learning as an ongoing process.

9.23 The teacher is willing to give and receive help.

9.24 The teacher is committed to seeking out, developing, and continually refining practices that address the individual needs of students.

9.25 The teacher recognizes her/his professional responsibility for engaging in and supporting appropriate professional practices for self and colleagues.

9.30 Performance
9.31 The teacher uses classroom observation, information about students, and research as sources for evaluating the outcomes of teaching and learning and as a basis for experimenting with, reflecting on, and revising practice.

9.32 The teacher seeks out professional literature, colleagues, and other resources to support her/his own development as a learner and a teacher.

9.33 The teacher draws upon professional colleagues within the school and other professional arenas as supports for reflection, problem-solving and new ideas, actively sharing experiences and seeking and giving feedback.

Standard 10: Collaboration, Ethics, and Relationships: The teacher communicates and interacts with parents/guardians, families, school colleagues, and the community to support students' learning and well-being.

10.10 Knowledge
10.11 The teacher understands schools as organizations within the larger community context and understands the operations of the relevant aspects of the system(s) within s/he works.
10.12 The teacher understands how factors in the students' environment outside of school (e.g. family circumstances, community environments, health and economic conditions) may influence students' life and learning.

10.13 The teacher understands and implements laws related to student's rights and teacher responsibilities (e.g. for equal education, appropriate education for students with disabilities, confidentiality, privacy, appropriate treatment of students, reporting in situations related to possible child abuse).

10.20 Dispositions
10.21 The teacher values and appreciates the importance of all aspects of a child's experience.

10.22 The teacher is concerned about all aspects of child's well-being (cognitive, emotional, social, and physical), and is alert to signs of difficulties.

10.23 The teacher respects the privacy of students and confidentiality of information.

10.24 The teacher is willing to consult with other adults regarding the education and well-being of her/his students.

10.25 The teacher is willing to work with other professionals to improve the overall learning environment for students.

10.30 Performances
10.31 The teacher participates in collegial activities designed to make the entire school a productive learning environment.

10.32 The teacher makes links with the learners' other environments on behalf of students, by consulting with parents, counselors, teachers of other classes and activities within the schools, and professionals in other community agencies.

10.33 The teacher can identify and use community resources to foster student learning.

10.34 The teacher establishes respectful and productive relationships with parents and guardians from diverse home and community situations, and seeks to develop cooperative partnerships in support of student learning and well being.

10.35 The teacher talks with and listens to the student, is sensitive and responsive to clues of distress, investigates situations, and

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seeks outside help as needed and appropriate to remedy problems.

10.36 The teacher acts as an advocate for students.

**FLORIDA EDUCATOR ACCOMPLISHED PRACTICES (FEAP)**

4. Uses appropriate techniques and strategies, which promote and enhance critical, creative, and evaluative thinking capabilities of students. CRITICAL THINKING

8. Demonstrates knowledge and understanding of the subject matter. SUBJECT MATTER KNOWLEDGE

**Competencies and Skills required for Teacher Certification in Florida (FTCE)**

1. Knowledge of Nature of Scientific Investigation and Instruction In Physics
   1.1 Identify the characteristics and processes of scientific inquiry.
   1.4 Relate the historical development of the major concepts, models, and investigations in physics to current knowledge (e.g., force and motion, conservation principles, fields, quantum theory).
   1.5 Distinguish between scientific theories and laws in terms of their specific roles and functions.

2. Knowledge of the Mathematics of Physics
   2.1 Determine the validity of a formula based on dimensional analysis.
   2.2 Combine vectors using graphic and trigonometric methods.
   2.3 Determine the dot product and cross product of two vectors.
   2.4 Convert between units of a given quantity (e.g., length, area, volume, mass, time, temperature).
   2.5 Identify prefixes in the metric system and standard units of measure (e.g., newtons, meters, kilowatt-hours, teslas, electron volts, calories, horsepower).
   2.6 Estimate the order of magnitude of a physical quantity.
   2.7 Interpret the slope of a graph or area under the curve in relation to physical concepts.
   2.8 Apply the concepts of accuracy, precision, uncertainty, and significant figures to measurements and calculations.

7. Knowledge of modern physics
   7.1 Analyze problems based on the energy of a photon (e.g., photoelectric effect, \( E = hf \)).
   7.2 Apply Einstein's theory of special relativity (e.g., light postulate, length contraction, time dilation).
   7.3 Apply Einstein's mass-energy equivalence (\( E = mc^2 \)).
   7.4 Determine the allowed energies of quantum atomic states or of transitions between such states.
   7.5 Compare the characteristics of alpha, beta, and gamma radiation.
   7.6 Predict outcomes of radioactive decay processes (e.g., balancing a nuclear equation).
   7.7 Calculate the age of a radioactive source, given data (e.g., half-life, activity, remaining mass, decayed fraction).
   7.8 Differentiate between fission and fusion processes and their applications.
   7.9 Analyze problems involving Heisenberg’s uncertainty principle (e.g., momentum versus position, energy versus time).
   7.10 Differentiate between historical models of the atom (e.g., Thomson's plum pudding, Rutherford, Bohr, electron cloud).
   7.11 Identify characteristics of subatomic and elementary particles (e.g., protons, neutrons, electrons, photons, neutrinos, quarks, antiparticles).
   7.12 Distinguish between the four fundamental forces of nature in terms of the particles they act upon, the relative distances over which they act, and their relative strengths.
   7.13 Identify characteristics of the dual (i.e., wave and particle) nature of light and matter.

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**National Science Teachers Association Standards (NSTA)**

1. Understand and can successfully convey to students the major concepts, principles, theories, laws and interrelationships of their fields of licensure and supporting fields as recommended by the National Science Teachers Association. (NSTA 1.0a)
2. Use multiple assessment tools and strategies to achieve important goals for instruction that are aligned with methods of instruction and needs of students. (NSTA 8.0a)
3. Reflect constantly upon their teaching and identify ways and means through which they may grow professionally (NSTA 10.0b)

**Professional Organization/Learned Society Standards**

National Society of Science Teachers Association; American Association of Physics Teachers
Florida Teacher Certification Examination (FTCE) Subject Area Examination (SAE) Competencies and Skills.
American Physics Society (APS)
National Society of Black Physicists (NSBP)

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**Academic Learning Compact**
<table>
<thead>
<tr>
<th>Assignment</th>
<th>Behavioral objectives</th>
<th>INTASC Standards</th>
<th>NSTA For Teachers of Physics</th>
<th>FEAPs</th>
<th>FTCE SAE</th>
<th>PEU Conceptual Framework</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Homework # 1</strong>&lt;br&gt;The limits of Classical Mechanics</td>
<td>Students will 1. Demonstrate knowledge of the lecture material, and 2. Develop and enhance the skill of analytical analysis and problem solving</td>
<td>1.10, 4.10, 8.10</td>
<td>C.5.b.15.0; C.5.c.26.0</td>
<td>4.1; 4.a,4.b; 8.1:8.a,8b.</td>
<td>1.4; 1.5; 2.1 -2.8; 7.1 – 7.13</td>
<td>CF 4.5(S)CF 5.1(K)</td>
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<td><strong>Homework # 2</strong>&lt;br&gt;Wave Packets and the Uncertainty Principle</td>
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<tr>
<td><strong>Homework # 3</strong>&lt;br&gt;The schrodinger Wave Equation</td>
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<td><strong>Homework # 4</strong>&lt;br&gt;Eigenfunctions and Eigenvalues</td>
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<td><strong>Homework # 5</strong>&lt;br&gt;One-Dimensional Potential</td>
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<tr>
<td><strong>Homework # 6</strong>&lt;br&gt;General Structure of Wave Mechanics</td>
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<tr>
<td><strong>Homework # 7</strong>&lt;br&gt;Operator Methods in Quantum Mechanics</td>
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<td><strong>Homework # 8</strong>&lt;br&gt;N-Particle Systems</td>
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<td><strong>Homework # 9</strong>&lt;br&gt;Schrodinger Equation in 3-D</td>
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<td><strong>Homework # 10</strong>&lt;br&gt;Angular Momentum</td>
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<tr>
<td><strong>Homework # 11</strong>&lt;br&gt;Radial Equation</td>
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<tr>
<td><strong>Homework # 12</strong>&lt;br&gt;Hydrogen Atom</td>
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</table>

Each homework assignment will address course content and is aimed at development problem solving skill of the students.

**Presentation:**
Every student will present a seminar on an agreed upon topic to be chosen in the third week of the course.

Students will demonstrate an understanding of how to formulate, present and communicate scientific material.

**Exams:**
4 TEST (each of 20 points)------ (the lowest grade will be dropped)
Final Exam is cumulative and covers the course

Students will demonstrate knowledge (Chapters 1-6) and problem solving skill attaining a grade of 70% or higher.

**Artifacts**

<table>
<thead>
<tr>
<th>Standards</th>
<th>Name of the Artifact 1</th>
<th>Name of the Artifact 2</th>
<th>Name of the Artifact 3</th>
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</thead>
<tbody>
<tr>
<td><strong>F</strong>=Florida Educator Accomplished Practices Standards (FEAPS)</td>
<td><strong>I</strong>=Interstate New Teacher Assessment and Support Consortium Standards (INTASC)</td>
<td><strong>(K)</strong>=Knowledge <strong>(S)</strong>=Skill <strong>(D)</strong>=Disposition</td>
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<tr>
<td><strong>Homework (3 problems) on</strong></td>
<td><strong>Homework (3 problems):</strong></td>
<td><strong>Homework (3 problems)</strong></td>
<td></td>
</tr>
</tbody>
</table>
Wave Packets and the Uncertainty Principle | Eigenfunctions and Eigenvalues | Hydrogen Atom
---|---|---
PEU CF | CF 4.5(S), CF 5.1(K) | CF 4.5(S), CF 5.1(K) | CF 4.5(S), CF 5.1(K)
FEAP | 4.1: 4.a,4.b; 8.1:8.a,8b. | 4.1: 4.a,4.b; 8.1:8.a,8b. | 4.1: 4.a,4.b; 8.1:8.a,8b.
INTACS | 1.10, 4.10, 8.10 | 1.10, 4.10, 8.10 | 1.10, 4.10, 8.10
NSTA For Teachers in Physics | C.5.b.15.0; C.5.c.26 | C.5.b.15.0; C.5.c.26.0 | C.5.b.15.0; C.5.c.26.0
FTCE SAE | 1.4; 1.5; 2.1 -2.8; 7.1 – 7.4, 7.9 -7.13 | 1.4; 1.5; 2.1 -2.8; 7.1 – 7.4, 7.9 -7.13 | 1.4; 1.5; 2.1 -2.8; 7.1 – 7.4, 7.9 -7.13

**Topical Outline**

- Week 1: The limits of Classical Mechanics
- Week 2: Wave Packets and the Uncertainty Principle
- Week 3: The Schrodinger Wave Equation
- Week 4,5: Eigenfunctions and Eigenvalues
- Week 6: One-Dimensional Potential
- Week 7: General Structure of Wave Mechanics
- Week 8,9: Operator Methods in Quantum Mechanics
- Week 10: N-Particle Systems
- Week 11,12: Schrodinger Equation in 3-D
- Week 13: Angular Momentum
- Week 14,15: Radial Equation
- Week 16: Hydrogen Atom

**Tentative Course Calendar**

1st Class meeting ----------------------------- 8/23

Week 5 ------------------ TEST #1
Week 9 ------------------ TEST #2
Week 13 ------------------ TEST #3
Week 16 ------------------ TEST #4

**HOLIDAYS**

- Labor Day ----------------------------- 9/6
- Veterans Day ----------------------------- 11/11
- Thanksgiving ----------------------------- 11/25-11/26

- Last Day to Withdrawal ----------------------------- 10/27
- Last Day of Classes ----------------------------- 12/3
- Final Exam ----------------------------- 12/6-10

**Teaching Methods**

Experiences to be provided in this course may include reading assignments in the textbook. During lecture quantum mechanics theory and concepts will be explain with sample problems to reinforce the understanding of subject.

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Given the nature of the subject it is to student responsibility to attend class. Solving problems is vital part of learning physics, at the end of each chapter, problems will be assigned. All assignments will be due on the due date. A week after the assignments is given. Absolute no late assignments will be accepted.

**Course Evaluation**

The purpose of evaluating is to accurately reflect the extent to which the student has mastered the course content. Accordingly a variety of indicators will be used that included four tests (drop one test in case student run into emergencies, or drop one the lowest test), class attendance, more significant is mental presence, class participation.

**Homework Assignments:** Problems from each section of the text will assigned each class (generally numbering two or three). Unless otherwise stated they will be due one week after being assigned. Each homework assignment will address course content and is aimed at increasing your problem solving skills.

**Class Participation and Student Led Discussions:** Participation in class will be monitored and counts towards each student's grade. I will not be solving the homework problem on the board; you will (with my help of course). Every student will present a seminar on an agreed upon topic to be chosen in the third week of the course.

**Course Examinations/ Final Examination:** There will be three exams: two –midterm examinations and final examination. These exams will be given to assess your content knowledge on major concepts, principles, and laws of quantum mechanics. It is possible that there will be an oral component to each exam. The final will be cumulative

**METHODS OF EVALUATIONS**

- 4 TEST (each of 20 points)------------------------------- 60 points (the lowest grade will be dropped)

| Test #1 | Week 1 | The limits of Classical Mechanics |
| Test #1 | Week 2 | Wave Packets and the Uncertainty Principle |
| Test #1 | Week 3 | Time-dependent Schrodinger Wave Equation |

| Test #2 | Week 4,5 | Eigenfunctions and Eigen values |
| Test #2 | Week 6 | One-Dimensional Potential |
| Test #2 | Week 7 | General Structure of Wave Mechanics |
| Test #2 | Week 8,9 | Operator Methods in Quantum Mechanics |

| Test #3 | Week 10 | N-Particle Systems |
| Test #3 | Week 11,12 | Schrodinger Equation in 3-D |
| Test #3 | Week 13 | Angular Momentum |

| Test #4 | Week 14,15 | Radial Equation |
| Test #4 | Week 16 | Hydrogen Atom |

- 12 Homework ------------------------------- 10 points

- 1 Final Exam (30 points) ------------------ 30 points

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**Total** 100 points

**Grading**

100 - 90 = A

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Course Policies

attendance:
Given the nature of the subject it is to student responsibility to attend class. Each Student is expected to be prepared. Prepared means have text and any supplemental reading distributed, Ready to listen because “if you are not listening you are not learning”.
Withdrawal from class without penalty of “F”

To withdraw from class, you must fill out and return in to the records office a drop form on or prior the midterm date listed on the front of the syllabus. If you stop coming to the class without going to the proper withdrawal procedure will result in the assignment of a grade of “F” for the semester.

Assignment of an incomplete “I”

An “I” will be assigned only to students, who fail to complete the course due to illness, injury or other non-academic emergency. Only those students who were doing satisfactory work will be eligible for the “I” grade. An “I” must be satisfactorily removed during the following academic quarter or the symbol “I” will be changed to “F” by the Records office. In unusual circumstances, an instructor may extend an incomplete beyond the one-quarter deadline – not to exceed a total of three consecutive calendar quarters. In order to remove an “I”, student will not be permitted to re-register for the course. Please contact me if you should have extended illness or some other unavoidable non-academic emergencies.

Academic Dishonesty:

Cheating may consist of stealing someone else’s answer on an exam to using notes of a “crib” sheet during exam. Should cheating be detected you will receive a zero on the given exam. Plagiarism may consist by presenting the work of others as your own work. Same as cheating, it will be penalized with a zero on the assignment.

References


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(K)=Knowledge (S)=Skill (D)=Disposition


4. Recommended internet supplementary material:
   • Some excellent visualizations are given here: http://msc.phys.rug.nl/quantummechanics.
   • A separate course can be found at http://electron6.phys.utk.edu/QM1/.
   • If you are interested in journal type articles, a large collection of them in many topics is available at http://www.dmoz.org/Science/Physics/Quantum_Mechanics/