### COURSE SYLLABUS

<table>
<thead>
<tr>
<th>Course Number:</th>
<th>CHM 4930</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prerequisite(s):</td>
<td>Permission by department</td>
</tr>
<tr>
<td>Course Title:</td>
<td>Chemistry Seminar</td>
</tr>
<tr>
<td>Course Credit:</td>
<td>1</td>
</tr>
<tr>
<td>Course Hours:</td>
<td>1 per week</td>
</tr>
<tr>
<td>College:</td>
<td>Arts and Sciences</td>
</tr>
<tr>
<td>Department:</td>
<td>Chemistry</td>
</tr>
<tr>
<td>Required Course Materials:</td>
<td>Access to Powerpoint or Keynote, chemical drawing programs, Access to scanner, Internet access, E-mail account</td>
</tr>
<tr>
<td>Faculty Name:</td>
<td>Dr. Edith Onyeozili</td>
</tr>
<tr>
<td>Term and Year:</td>
<td>Fall 2010</td>
</tr>
<tr>
<td>Place and Time:</td>
<td>M 3:30pm-4:30pm, Rm. 208 Science Research</td>
</tr>
<tr>
<td>Office Location:</td>
<td>FSH (Science Research Building), Rm. 119</td>
</tr>
<tr>
<td>Telephone:</td>
<td>850-412 5328</td>
</tr>
<tr>
<td>e-mail:</td>
<td><a href="mailto:edith.onyeozili@famu.edu">edith.onyeozili@famu.edu</a></td>
</tr>
</tbody>
</table>

Web site: [http://web.me.com/mweininger/famu](http://web.me.com/mweininger/famu)

**Course Description**
Weekly discussions/presentations of current chemical topics by students, faculty, and invited speakers. Each student is required to prepare a scientific paper on a chemistry topic and present an oral seminar to faculty and peers.

**Course Purpose**
Required course for chemistry majors.

**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:

![Diagram of Exemplary Professional Conceptual Framework]

**TECHNOLOGY**

**• CF 2**
**• Through this focal area, the FAMU professional education candidate will:**

<table>
<thead>
<tr>
<th>CF: 2.1 (S)</th>
<th>Use of available technology and software to support student learning.</th>
<th>F: 4,12</th>
<th>I: 6</th>
</tr>
</thead>
<tbody>
<tr>
<td>CF: 2.7 (S)</td>
<td>Facilitate the use of technology by students.</td>
<td>F: 4,12</td>
<td>I: 6</td>
</tr>
</tbody>
</table>

**VALUES**

**• CF 3**
**• Through this focal area, the FAMU professional education candidate will:**

<table>
<thead>
<tr>
<th>CF: 3.4(D)</th>
<th>Be committed to individual excellence.</th>
<th>F: 11</th>
<th>I: 5,9</th>
</tr>
</thead>
<tbody>
<tr>
<td>CF: 3.5(D)</td>
<td>Recognize the importance of peer relationships in establishing a climate for learning.</td>
<td>F: 2, 7</td>
<td>I: 5,10</td>
</tr>
</tbody>
</table>

**CRITICAL THINKING**

**• CF 4**
**• Through this focal area, the FAMU professional education candidate will:**

<table>
<thead>
<tr>
<th>CF: 4.2 (S)</th>
<th>Use a variety of instructional/professional strategies to encourage students’ development of critical thinking and performance.</th>
<th>F: 2, 7</th>
<th>I: 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>CF: 4.3 (D)</td>
<td>Value critical thinking and self-directed learning as habits of mind.</td>
<td>F: 4</td>
<td>I: 1,4</td>
</tr>
<tr>
<td>CF: 4.5 (S)</td>
<td>Demonstrate the use of higher order thinking skills.</td>
<td>F: 8</td>
<td>I: 4</td>
</tr>
</tbody>
</table>
PROFESSIONALISM

- CF 5
- Through this focal area, the FAMU professional education candidate will:

| CF: 5.1 (K) | Know the content | F: 8 | I: 1 |
| CF: 5.6 (S) | Display effective verbal & non-verbal communication techniques to foster valuable interaction in the classroom. | F: 11 | I: 6 |
| CF: 5.7 (S,D) | Display appropriate code of conduct including dress, language, and respective behavior. | F: 11 | I: 5, 9 |

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 understand 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
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.

Standard 5, Learning Environment
The teacher uses an understanding of individual and group motivation and behavior to create a learning environment that encourages positive social interaction, active engagement in learning, and self-motivation.

5.10 Knowledge
5.11 The teacher can use knowledge about human motivation and behavior drawn from the foundational sciences of psychology, anthropology, and sociology to develop strategies for organizing and supporting individual and group work.

5.12 The teacher understands how social groups function and influence people, and how people influence groups.

5.13 The teacher knows how to help people work productively and cooperatively with each other in complex social settings.

5.14 The teacher understands the principles of effective classroom management and can use a range of strategies to promote positive relationships, cooperation, and purposeful learning in the classroom.

5.15 The teacher recognizes factors and situations that are likely to promote or diminish intrinsic motivation, and knows how to help students become self-motivated.

5.20 Dispositions
5.21 The teacher takes responsibility for establishing a positive climate in the classroom and participates in maintaining such a climate in the school as a whole.

5.22 The teacher understands how participation supports commitment, and is committed to the expression and use of democratic values in the classroom.

5.23 The teacher values the role of students in promoting each other's learning and recognizes the
importance of peer relationships in establishing a climate of learning.

5.24 The teacher recognizes the values of intrinsic motivation to students' life-long growth and learning.

5.25 The teacher is committed to the continuous development of individual students' abilities and considers how different motivational strategies are likely to encourage this development for each student.

**5.30 Performances**

5.31 The teacher creates a smoothly functioning learning community in which students assume responsibility for themselves and one another, participate in decision making, work collaboratively and independently, and engage in purposeful learning activities.

5.32 The teacher engages students in individual and group learning activities that help them develop the motivation to achieve, by, for example, relating lessons to students' personal interests, allowing students to have choices in their learning, and leading students to ask questions and pursue problems that are meaningful to them.

5.33 The teacher organizes, allocates, and manages the resources of time, space, activities, and attention to provide active and equitable engagement of students in productive tasks.

5.34 The teacher maximizes the amount of class time spent in learning by creating expectations and processes for communication and behavior along with a physical setting conducive to classroom goals.

5.35 The teacher helps the group to develop shared values and expectations for student interactions, academic discussions, and individual and group responsibility that create a positive classroom climate of openness, mutual respect, support, and inquiry.

5.36 The teacher analyzes the classroom environment and makes decisions and adjustments to enhance social relationships, student motivation and engagement, and productive work.

5.37 The teacher organizes, prepares students for, and monitors independent and group work that allows for full and varied participation of all individuals.

**Standard 6, Communication**

The teacher uses knowledge of effective verbal, nonverbal, and media communication techniques to foster active inquiry, collaboration, and supportive interaction in the classroom.

**6.10 Knowledge**

6.11 The teacher understands communication theory, language development, and the role of language in learning.

6.12 The teacher understands how cultural and gender differences can affect communication in the classroom.

6.13 The teacher recognizes the importance of nonverbal as well as verbal communication.

6.14 The teacher knows about and can use effective verbal, nonverbal, and media communication techniques.

**6.20 Dispositions**
6.21 The teacher recognizes the power of language for fostering self-expression, identity development, and learning.

6.22 The teacher values many ways in which people seek to communicate and encourages many modes of communication in the classroom.

6.23 The teacher is a thoughtful and responsive listener.

6.24 The teacher appreciates the cultural dimensions of communication, responds appropriately, and seeks to foster culturally sensitive communication by and among all students in the class.

6.30 Performance
6.31 The teacher models effective communications strategies in conveying ideas and information and in asking questions (e.g. monitoring the effects of messages, restating ideas and drawing connections, using visual, aural, and kinesthetic cues, being sensitive to nonverbal cues given and received).

6.32 The teacher supports and expands learner expression in speaking, writing, and other media.

6.33 The teacher knows how to ask questions and stimulate discussion in different ways for particular purposes, for example, probing for learner understanding, helping students articulate their ideas and thinking processes, promoting risk-taking and problem-solving, facilitating factual recall, encouraging convergent and divergent thinking, stimulating curiosity, helping stimulate students to question.

6.34 The teacher communicates in ways that demonstrate a sensitivity to cultural and gender differences (e.g. appropriate use of eye contact, interpretation of body language and verbal statements, acknowledgment of and responsiveness to different modes of communication and participation).

6.35 The teacher knows how to use a variety of media communication tools, including audio-visual aids and computers, including educational technology, to enrich learning opportunities.

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
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 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)

Accomplished Practice #2: COMMUNICATION
2.1 The preprofessional teacher recognizes the need for effective communication in the classroom and is in the process of acquiring techniques which she/he will use in the classroom.
2.2 STANDARD: Communication -- Uses effective communication techniques with students and all other stakeholders.
2.a Establishes positive interactions in the learning environment that uses incentives and consequences for students.
2.b Establishes positive interactions between the teacher and student that are focused upon learning.
2.c Varies communication (both verbal and nonverbal) according to the nature and needs of individuals.
2.d Encourages students in a positive and supportive manner.
2.e Communicates to all students high expectations for learning.
2.h Practices strategies that support individual and group inquiry.
2.j Identifies communication techniques for use with colleagues, school/community specialists, administrators, and families, including families whose home language is not English.

Accomplished Practice #4: Critical-thinking
4.1 The pre-professional teacher is acquiring performance assessment techniques and strategies that measure higher order thinking skills in students and is building a repertoire of realistic projects and problem-solving activities designed to assist all students in demonstrating their ability to think creatively. (A) Uses appropriate techniques and strategies which promote and enhance critical, creative, and evaluative thinking capabilities of students.
1. Uses assessment strategies (traditional and alternate) to assist the continuous development of the learner. ASSESSMENT
4.2. Uses appropriate techniques and strategies which promote and enhance critical, creative, and evaluative thinking capabilities of students.
4.a Provides opportunities for students to learn higher-order thinking skills.
4.b Identifies strategies, materials, and technologies that she/he will use to expand students’ thinking abilities.
4.g Demonstrates and models the use of higher-order thinking abilities.

Accomplished Practice #7: HUMAN DEVELOPMENT AND LEARNING
7.1 Drawing upon well established human development/learning theories and concepts and a variety of information about students, the preprofessional teacher plans instructional activities.
7.a Recognizes developmental levels of students and identifies differences within a group of students.
7.d Communicates with students effectively by taking into account their developmental levels, linguistic development, cultural heritage, experiential background, and interests.
7.e Varies activities to accommodate different student learning needs, developmental levels, experiential backgrounds, linguistic development, and cultural heritage.
7.h Develops short-term personal and professional goals relating to human development and learning.

Accomplished Practice #8: KNOWLEDGE OF SUBJECT MATTER
8.2 Demonstrates knowledge and understanding of the subject matter.
8.b Increases subject matter knowledge in order to integrate the learning activities.
8.f Develops short- and long-term personal and professional goals relating to knowledge of subject matter.

Accomplished Practice #11: ROLE OF THE TEACHER
11.1 The preprofessional teacher communicates and works cooperatively with families and colleagues to improve the educational experiences at the school.
11.2 STANDARD: Role of the Teacher -- Works with various education professionals, parents, and other stakeholders in the continuous improvement of the educational experiences of students.
11.b Provides meaningful feedback on student progress to students and families and seeks assistance for self and families.

Accomplished Practice #12: TECHNOLOGY
12.b Uses technology tools on a personal basis.
12.c Demonstrates awareness of and models acceptable use policies and copyright issues.
12.d Identifies and uses standard references in electronic media.
12.i Selects and utilizes educational software tools for instructional purposes based upon reviews and recommendations of other professionals.
12.j Uses digital information obtained through intranets and/or the Internet (e.g., e-mail and research).
12.k Uses technology to collaborate with others.
12.l Develops professional goals relating to technology integration.

National Science Teachers Association Standards (NSTA)

Standard 1: Content

Teachers of science understand and can articulate the knowledge and practices of contemporary science. They can interrelate and interpret important concepts, ideas, and applications in their fields of licensure; and can conduct scientific investigations. To show that they are prepared in content, teachers of science must demonstrate that they:
a. 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.
b. Understand and can successfully convey to students the unifying concepts of science delineated by the National Science Education Standards.
c. Understand and can successfully convey to students important personal and technological applications of science in their fields of licensure.
d. Understand research and can successfully design, conduct, report and evaluate investigations in science.
e. Understand and can successfully use mathematics to process and report data, and solve problems, in their field(s) of licensure.

B.2. In relation to the physical sciences, science specialists at this level should have all of the competencies described for the elementary generalist, but also should be prepared in chemistry and physics to lead students to understand:
13. States of matter and bonding in relation to molecular behavior and energy.
15. Classifications of elements and compounds.

B.4. To create interdisciplinary perspectives and to help students understand why science is important to them, elementary/middle level science specialists should have all of the competencies described for the elementary generalist, but also should be prepared to lead students to understand:
33. Use of technological tools in science, including calculators and computers.

C.3.a. Core Competencies. All teachers of chemistry should be prepared lead students to understand the unifying concepts required of all teachers of science, and should in addition be prepared to lead students to understand:
1. Fundamental structures of atoms and molecules.
2. Basic principles of ionic, covalent, and metallic bonding.
3. Physical and chemical properties and classification of elements including periodicity.
10. Functional and polyfunctional group chemistry.
12. Fundamental processes of investigating in chemistry.
13. Applications of chemistry in personal and community health and environmental quality.

C.3.b. Advanced Competencies. In addition to the core competencies, teachers of chemistry as a primary field should also be prepared to effectively lead students to understand:
26. How to design, conduct, and report research in chemistry. (CHM 4930)
27. Applications of chemistry and chemical technology in society, business, industry, and health fields. (CHM 4930)

Standard 10: Professional Growth
Teachers of science strive continuously to grow and change, personally and professionally, to meet the diverse needs of their students, school, community, and profession. They have a desire and disposition for growth and betterment. To show their disposition for growth, teachers of science must demonstrate that they:
a. Engage actively and continuously in opportunities for professional learning and leadership that reach beyond minimum job requirements.
b. Reflect constantly upon their teaching and identify ways and means through which they may grow professionally.
c. Use information from students, supervisors, colleagues and others to improve their teaching and facilitate their professional growth.
Professional Organization/Learned Society Standards

National Society of Science Teachers Association
Florida Teacher Certification Examination (FTCE) Subject Area Examination (SAE) Competencies and Skills

Professional Society / National and State Standards Addressed in the Course

American Chemical Society (ACS) Expected Outcomes:
This course should ensure that students know basic chemical concepts such as stoichiometry, states of matter, atomic structure, molecular structure and bonding, thermodynamics, equilibria, and kinetics. Students need to be competent in basic laboratory skills such as safe practices, keeping a notebook, use of electronic balances and volumetric glassware, preparation of solutions, chemical measurements using pH electrodes and spectrophotometers, data analysis, and report writing.

Course 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>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PEU CF</strong></td>
<td>Chemical Abstract search, Selecting a topic and Literature search</td>
<td>Preparing an outline and a preliminary power-point presentation</td>
<td>Presentation of a chemistry seminar</td>
</tr>
<tr>
<td></td>
<td>2.1, 2.7, 3.4, 3.5, 4.2, 4.3, 4.5, 5.1, 5.6, 5.7</td>
<td>2.1, 2.7, 3.4, 3.5, 4.2, 4.3, 4.5, 5.1, 5.6, 5.7</td>
<td>2.1, 2.7, 3.4, 3.5, 4.2, 4.3, 4.5, 5.1, 5.6, 5.7</td>
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<tr>
<td><strong>FEAPS</strong></td>
<td>2.1, 2.2, 2.a, 2.b, 2.c, 2.e, 2.h, 2.j, 2.k, 4.1, 4.2, 4.a, 4.b, 4.g, 8.2, 8.a, 8.b, 8.f, 11.1, 11.2, 11.b, 12.b, 12.c, 12.i, 12.j, 12.l.</td>
<td>2.1, 2.2, 2.a, 2.b, 2.c, 2.e, 2.h, 2.j, 2.k, 4.1, 4.2, 4.a, 4.b, 4.g, 8.2, 8.a, 8.b, 8.f, 11.1, 11.2, 11.b, 12.b, 12.c, 12.i, 12.j, 12.l.</td>
<td>2.1, 2.2, 2.a, 2.b, 2.c, 2.e, 2.h, 2.j, 2.k, 4.1, 4.2, 4.a, 4.b, 4.g, 8.2, 8.a, 8.b, 8.f, 11.1, 11.2, 11.b, 12.b, 12.c, 12.i, 12.j, 12.l.</td>
</tr>
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<td><strong>INTASC</strong></td>
<td>1, 4, 5, 6, 9, 10</td>
<td>1, 4, 5, 6, 9, 10</td>
<td>1, 4, 5, 6, 9, 10</td>
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<td><strong>FTCE</strong></td>
<td>3.0, 4.0, 6.1, 6.2, 6.3, 6.4, 6.5, 6.6, 6.7</td>
<td>3.0, 4.0, 6.1, 6.2, 6.3, 6.4, 6.5, 6.6, 6.7</td>
<td>3.0, 4.0, 6.1, 6.2, 6.3, 6.4, 6.5, 6.6, 6.7.</td>
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<td><strong>NSTA</strong></td>
<td>1; 1.B.2.11, 12; 1.B.4.33; 1.C.3.a.3, 4; 1.C.3.b.16, 23; 10.a, 10.b, 10.c</td>
<td>1; 1.B.2.11, 12; 1.B.4.33; 1.C.3.a.3, 4; 1.C.3.b.16, 23; 10.a, 10.b, 10.c</td>
<td>1; 1.B.2.11, 12; 1.B.4.33; 1.C.3.a.3, 4; 1.C.3.b.16, 23; 10.a, 10.b, 10.c</td>
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</tbody>
</table>

Rubric for evaluation:

4 points - Artifact 1: Have a topic selected and have at least 4 references on the selected topic completed on time.
Artifact 2: Have an outline and a well organized powerpoint presentation completed on time.
Artifact 3: Appropriately dressed, exhibit mastery of presentation equipment, the quality of slides presented are easily readable and factually correct, give a coherent and well flowing presentation, and be able to answers questions that relate to the content of the seminar.

3 points - Artifact 1,2: Missing one of the assignments or the deadline for completion.
Artifact 3: Meet all the requirements stated above except for answering the questions well.
2 points - Artifact 1,2: Missing two assignments or missing one assignment and not meeting the deadline.
Artifact 3: Meet the above criteria except for answering the questions and deficient in one other area.

1 point - Artifact 1,2: Incompletion of all assignments and not meeting the deadline.
Artifact 3: Deficient in more than two areas of the above criteria.

<table>
<thead>
<tr>
<th>Assignment</th>
<th>Behavioral Objectives</th>
<th>INTASC Standards</th>
<th>FTCE SAE</th>
<th>FEAPS</th>
<th>NSTA</th>
<th>PEU Conceptual Framework</th>
</tr>
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<tbody>
<tr>
<td>Assignment: Selected topics of chemical and societal interest. Each assignment will address course content and is aimed at development of problem solving skills.</td>
<td>Students will 1. Develop an understanding of the relationship (and impact) between scientific research and society. 2. Access and search online and print scientific journals for articles of interest. 3. Read, evaluate and orally present/defend a scientific article using PowerPoint. 4. Develop and enhance the skill of analytical analysis and problem solving</td>
<td>1, 4, 5, 6, 9, 10</td>
<td>3.0, 4.0, 6.1, 6.2, 6.3, 6.4, 6.5, 6.6, 6.7.</td>
<td>2, 4, 7, 8, 11, 12</td>
<td>1; 1.B.2.11, 12; 1.B.4.33; 1.C.3.a.3, 4; 1.C.3.b.16, 23; 10.a, 10.b, 10.c.</td>
<td>2.1, 2.7, 3.4, 4.2, 4.3, 4.5, 5.1, 5.6, 5.7</td>
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</table>

**Overall Goals of the Course**

The goal of this course is to give students the experience of presenting a seminar to his/her peers and chemistry faculty on a topic of chemical or related interest currently being studied or pursued in academic and/or industrial laboratories. In order to develop a final presentation the student must select a topic, search the literature on the topic, write an outline and rough draft of the seminar, and rehearse for the seminar. Even though a computer-based slide show will be used as the main presentation tool, other audio/visual tools may be used. A student may use an overhead projector, blackboard, computer, motion pictures, videos, etc., to enhance their presentation.

**Specific Behavioral Objectives**

*(Standards Addressed in this course: FTCE 3.0, 4.0, 6.1, 6.2, 6.3, 6.4, 6.5, 6.6, 6.7; ACS)*

1. Develop an understanding of the relationship (and impact) between scientific research and society.

2. Access and search online and print scientific journals for articles of interest.

3. Read, evaluate and orally present/defend a scientific article using PowerPoint.
Professional Society/National and State Standards Addressed in the Course

American Chemical Society (ACS) Expected Outcomes:
This course should ensure that students know basic chemical concepts such as stoichiometry, states of matter, atomic structure, molecular structure and bonding, thermodynamics, equilibria, and kinetics. Students need to be competent in basic laboratory skills such as safe practices, keeping a notebook, use of electronic balances and volumetric glassware, preparation of solutions, chemical measurements using pH electrodes and spectrophotometers, data analysis, and report writing.

Florida Teacher Certification Examination (FTCE) Subject Area Examination (SAE) Competencies and Skills

6 Knowledge of the nature of science
1. Identify the characteristics and components of scientific inquiry.
2. Identify how the characteristics of scientific research differ from those of other areas of learning.
3. Identify variables in a given experimental design.
4. Identify bias in an experimental design.
5. Evaluate, interpret, and predict from empirical data.
6. Interpret graphical data.
7. Analyze the relationship between experimental observations and underlying assumptions, hypotheses, conclusions, laws, or theories.
8. Relate experimental evidence to models.
9. Differentiate between the uses of qualitative and quantitative data.
10. Analyze the relationship between basic scientific research and applied research, technology, the economy, or the public good.
11. Identify how science and society influence each other.
12. Identify evidence of the progressive development of science.

Teaching Methodology & Evaluation
Lecture Style, Use of Overheads, and PowerPoint.

Course Evaluation
Evaluation of oral presentation using evaluation rubric.

Grading
The grade will be based on the following activities:

<table>
<thead>
<tr>
<th>Activity</th>
<th>Relative % Value</th>
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<tbody>
<tr>
<td>Selecting Topic and Mentor</td>
<td>5</td>
</tr>
<tr>
<td>Submission of Final Draft by Deadline (Mandatory)</td>
<td>10</td>
</tr>
<tr>
<td>Rehearsal (w/Mentor)</td>
<td>10</td>
</tr>
<tr>
<td>Abstract</td>
<td>2.5</td>
</tr>
<tr>
<td>Announcement</td>
<td>2.5</td>
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</table>
The seminar itself is the most important activity of those listed. In order for a student to receive a grade of 'A', all activities must be completed successfully and on-time and the student must present an 'A' quality seminar. The quality of the seminar will be judged by all faculty attending the seminar. Grades of 'D' or 'F' on the seminar itself will most assuredly result in a grade of 'D' or 'F' for the course. The following grading scale will be used to determine the final grade:

<table>
<thead>
<tr>
<th>Grade</th>
<th>%</th>
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<tbody>
<tr>
<td>A</td>
<td>90-100</td>
</tr>
<tr>
<td>B</td>
<td>80-90</td>
</tr>
<tr>
<td>C</td>
<td>70-80</td>
</tr>
<tr>
<td>D</td>
<td>60-70</td>
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<tr>
<td>F</td>
<td>&lt;60</td>
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**Course Schedule**

<table>
<thead>
<tr>
<th>Week of August</th>
<th>Syllabus; Discussion on the Essence of a Good Seminar; Lottery for Mentor; Review of Science/Technology section in C&amp;E News, Chemical Abstracts, and Annual Reviews, and Web search engines (Google), Webluis Assignment 1: See mentor; choose topic; use Chemical Abstracts Assignment 1 due: Bring Chemical Abstracts on lead article and three related articles. Assignment 2: Report on mentor and topic; get lead article on topic Assignment 2 due; Discuss topic with instructor Assignment 3: Further literature review of topic Assignment 3 due; Discussion of the elements of good presentations or presentation software; Introduction to Desktop Publishing, ChemDraw &amp; Paint program; Assignment 4: Write outline of topic Assignment 4 due Assignment 5: Write Rough Draft, develop slide show Lottery for order of rehearsal presentations Assignment 5 due: Rehearsals begin Lottery for order of seminar presentations Rehearsals completed and slide shows polished Seminars presented; announcements distributed Seminars presented; announcements distributed Seminars presented; announcements distributed Seminars presented; announcements distributed Seminars presented; announcements distributed Seminars presented; announcements distributed</th>
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<tbody>
<tr>
<td>24</td>
<td>Assignment 1: See mentor; choose topic; use Chemical Abstracts Assignment 1 due: Bring Chemical Abstracts on lead article and three related articles. Assignment 2: Report on mentor and topic; get lead article on topic Assignment 2 due; Discuss topic with instructor Assignment 3: Further literature review of topic Assignment 3 due; Discussion of the elements of good presentations or presentation software; Introduction to Desktop Publishing, ChemDraw &amp; Paint program; Assignment 4: Write outline of topic Assignment 4 due Assignment 5: Write Rough Draft, develop slide show Lottery for order of rehearsal presentations Assignment 5 due: Rehearsals begin Lottery for order of seminar presentations Rehearsals completed and slide shows polished Seminars presented; announcements distributed Seminars presented; announcements distributed Seminars presented; announcements distributed Seminars presented; announcements distributed Seminars presented; announcements distributed Seminars presented; announcements distributed</td>
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<tr>
<td>31</td>
<td>Assignment 1 due: Bring Chemical Abstracts on lead article and three related articles. Assignment 2: Report on mentor and topic; get lead article on topic Assignment 2 due; Discuss topic with instructor Assignment 3: Further literature review of topic Assignment 3 due; Discussion of the elements of good presentations or presentation software; Introduction to Desktop Publishing, ChemDraw &amp; Paint program; Assignment 4: Write outline of topic Assignment 4 due Assignment 5: Write Rough Draft, develop slide show Lottery for order of rehearsal presentations Assignment 5 due: Rehearsals begin Lottery for order of seminar presentations Rehearsals completed and slide shows polished Seminars presented; announcements distributed Seminars presented; announcements distributed Seminars presented; announcements distributed Seminars presented; announcements distributed Seminars presented; announcements distributed</td>
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<tr>
<td>7</td>
<td>Assignment 2 due; Discuss topic with instructor Assignment 3: Further literature review of topic Assignment 3 due; Discussion of the elements of good presentations or presentation software; Introduction to Desktop Publishing, ChemDraw &amp; Paint program; Assignment 4: Write outline of topic Assignment 4 due Assignment 5: Write Rough Draft, develop slide show Lottery for order of rehearsal presentations Assignment 5 due: Rehearsals begin Lottery for order of seminar presentations Rehearsals completed and slide shows polished Seminars presented; announcements distributed Seminars presented; announcements distributed Seminars presented; announcements distributed Seminars presented; announcements distributed</td>
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<td>14</td>
<td>Assignment 3 due; Discussion of the elements of good presentations or presentation software; Introduction to Desktop Publishing, ChemDraw &amp; Paint program; Assignment 4: Write outline of topic Assignment 4 due Assignment 5: Write Rough Draft, develop slide show Lottery for order of rehearsal presentations Assignment 5 due: Rehearsals begin Lottery for order of seminar presentations Rehearsals completed and slide shows polished Seminars presented; announcements distributed Seminars presented; announcements distributed</td>
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<tr>
<td>21</td>
<td>Assignment 4: Write outline of topic Assignment 4 due Assignment 5: Write Rough Draft, develop slide show Lottery for order of rehearsal presentations Assignment 5 due: Rehearsals begin Lottery for order of seminar presentations Rehearsals completed and slide shows polished Seminars presented; announcements distributed</td>
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<td>28</td>
<td>Assignment 4 due Assignment 5: Write Rough Draft, develop slide show Lottery for order of rehearsal presentations Assignment 5 due: Rehearsals begin Lottery for order of seminar presentations Rehearsals completed and slide shows polished</td>
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<td>5</td>
<td>Lottery for order of rehearsal presentations Assignment 5 due: Rehearsals begin Lottery for order of seminar presentations Rehearsals completed and slide shows polished</td>
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<td>12</td>
<td>Assignment 5 due: Rehearsals begin Lottery for order of seminar presentations Rehearsals completed and slide shows polished</td>
</tr>
<tr>
<td>19</td>
<td>Rehearsals completed and slide shows polished</td>
</tr>
<tr>
<td>26</td>
<td>Seminars presented; announcements distributed</td>
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<tr>
<td>2</td>
<td>Seminars presented; announcements distributed</td>
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<tr>
<td>9</td>
<td>Seminars presented; announcements distributed</td>
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<tr>
<td>16</td>
<td>Seminars presented; announcements distributed</td>
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<tr>
<td>23</td>
<td>Seminars presented; announcements distributed</td>
</tr>
<tr>
<td>30</td>
<td>Seminars presented; announcements distributed</td>
</tr>
</tbody>
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**Course Policies**

**Choosing a Mentor:** Students are to consult with the chemistry faculty to select a mentor.
Selecting A Topic: A list of topics will be compiled by the instructor, which will be distributed to the mentors and students for their review. A mentor in consultation with a student will choose a topic from the aforementioned list or a topic of the mentor’s liking, not necessarily found on the aforementioned list.

Chemical And Biological Abstracts and SciFinder Scholar: All chemical and biological articles, papers, books, monographs, etc, worldwide are abstracted in either Chemical or Biological Abstracts. Student must have a working knowledge of these resources in order to adequately search the literature. SciFinder Scholar is an application created by Chemical Abstracts which is used to search online data bases via key words.

Outline: After a student has had sufficient time to research and study a chosen topic, an outline must be written which delinates background, theory, procedure, results, conclusions and future prospects.

Rough Draft: The student will write the text of the seminar as if the seminar presentation was being given at the time of the writing. Even if all slides of the final slide show have not been completed, a description of their content and their placement in the slide show will be indicated. The rough draft will be given to the instructor before the final rehearsal.

Rehearsal: At a time in the course when the rough draft has been completed all students will present a rehearsal to their mentor and instructor. A near complete PowerPoint slide show will be presented. Any content lacking in the slide show should be minor at the time of rehearsal. Both the mentor and the instructor must agree on the student’s preparedness to proceed. Failure to have a near complete slide show will result in the student not being allowed to continue and will receive a ‘F’ for the course.

Order of presentation: The order of presentation will be decided by lottery.

Announcing Seminars: At least four days before the presentation of the seminar, the student will post announcements of the seminar at the appropriate location in Jones Hall or any other building on campus. Also the announcements will be placed in the mailboxes of all faculty. The announcement will consist of the words 'Undergraduate Chemistry Seminar', the title, the student's name, the time and date, and the place.

Abstract: The abstract will be written in conjunction with the seminar. Each faculty member will be given an abstract before the seminar is presented. The abstract will consist of the title, the student's name, a brief description of the topic, and a literature review of at least three references.

Final Presentation of Seminar: The seminar will be presented at a time assigned at the beginning of the semester. The seminar should be no less than 20 minutes and no longer than 30 minutes. Approximately 10 minutes should be allotted for questions. No coaching is allowed by members of the audience. Reading the seminar directly from a prepared manuscript is considered poor technique and will be down-graded. The student is required to answer questions about the subject matter covered in the seminar and the fundamental chemistry pertaining to the seminar topic. The student is also expected to have a knowledge of fundamental chemistry covered in general and organic chemistry. An inability to answer questions about the fundamentals of chemistry as related to the seminar topic will be considered a serious flaw in the student's presentation and will most likely result in a lower grade.

Criteria for Judging the Quality of the Presentation: The Department of Chemistry considers Chemistry Seminar a capstone course which by its nature reveals the development of a chemistry student over the course of their undergraduate studies. The presentation will be judged by at least three attending faculty members. The criteria for judgment and their contributions are the following:
• Professionalism (2%): dress should be at least professionally informal; proper, grammatically correct standard English should be used; the entire process should be taken seriously; the seminar should be delivered with enthusiasm
• Mastery of Presentation Equipment (2%): be able to operate any equipment used in seminar presentation flawlessly
• Quality of Presentation Materials (10%): all slides must be readable by members of audience; photographs, scans, graphs, legends, drawings must be easily readable; drawings, graphs, pictures must be factually correct
• Quality of the Presentation (46%): present a coherent, well flowing presentation; be able to explain data, graphs, equations and charts; be able to explain relationships between results, data, graphs, charts; have a beginning, middle, and end to presentation; no reading from note cards
• Answering Questions (40%): be able to answer questions about the content of the seminar; be able to answer questions about fundamentals of chemistry that relate to the content of the seminar

Students with Disabilities: Students with disabilities that fall under the Americans with Disabilities Act should follow the following procedures: 1) Provide documentation of your disability to the FAMU student disability resource center; 2) During the first week of class, provide your instructor with a statement from the FAMU student disability resource center indicating that you have registered with FAMU student disability services. The statement should indicate the disability and the special accommodations that will be required.

Academic Honesty: It is your responsibility to know the university’s policy on academic/intellectual dishonesty (Section 6C3-2.012(10)(s) of the FAMU Student Handbook). Any student caught cheating in any manner is awarded the grade of F. No warnings are given; it is your responsibility to do your own work. All persons collaborating in cheating will receive the grade of F.

Non-discrimination policy statement: It is the policy of the University to assure that each student is permitted to attend classes in an environment free from any form of discrimination, including race, religion, color, age, handicap, sex, marital status, national origin and veteran status.

Procedure for resolving faculty-student conflict:
• Student first attempts to resolve issue with instructor
• Student submits written notification of problem to chair.
• Chair forwards student letter to instructor.
• Instructor responds in writing to chair.
• Chair meets with instructor and/or student if necessary.
• Chair forwards response/recommendation to Dean’s office.
• Dean decides what further course of action is available to the student.