

**Purpose:** It is the intention of this Administrative-Master Syllabus to provide a general description of the course, outline the required elements of the course and to lay the foundation for course assessment for the improvement of student learning, as specified by the faculty of Wharton County Junior College, regardless of who teaches the course, the timeframe by which it is instructed, or the instructional method by which the course is delivered. It is not intended to restrict the manner by which an individual faculty member teaches the course but to be an administrative tool to aid in the improvement of instruction.

**Course Title** – Introduction to Chemistry I

**Course Prefix and Number** – CHEM 1405

**Department** – Chemistry, Physics and Engineering

**Division** – Math and Sciences

**Course Type:** (check one)

- Academic General Education Course (from ACGM – but not in WCJC Core)
- Academic WCJC Core Course
- WECM course (This course is a Special Topics or Unique Needs Course: Y  or N )

**Semester Credit Hours # : Lecture Hours # : Lab/Other Hours #** 4:3:2

**Equated Pay Hours for Course** – 4.2

**Course Catalog Description** - Survey course introducing chemistry. Topics may include inorganic, organic, biochemistry, food/physiological chemistry, and environmental/consumer chemistry. Designed for non-science and allied health students.

List Lab/ Other Hours
Lab Hours 2
Clinical Hours
Practicum Hours
Other (list)

**Prerequisites/Co-requisites** – TSI reading satisfied or concurrent enrollment in READ 0307.

**Prepared by** Frank Carey

**Date** 8-2-13

**Reviewed by Department Head** Kelley Whitley

**Date** 8-2-13

**Accuracy Verified by Division Chair** Kevin Dees

**Date** 8-2-13

**Approved by Dean or Vice President of Instruction** *gghunt*

**Date** 8-2-13



**I. Topical Outline** – Each offering of this course must include the following topics (be sure to include information regarding lab, practicum, clinical or other non-lecture instruction):

**Lecture:**

<b>TOPICAL OUTLINE</b>	<b>DEDICATED INSTRUCTIONAL TIME</b>
<b>Chemistry / scientific method</b>	One Week
<b>Measurement / scientific notation</b>	One week
<b>Periodic Table</b>	Two weeks
<b>Elements, atoms and ions</b>	Two weeks
<b>Nomenclature</b>	One week
<b>Moles / Avogadro's Number / Stoichiometry</b>	Two weeks
<b>Chemical reactions / Calculations</b>	Two weeks
<b>Bonding / Molecular structure</b>	One week
<b>Acids &amp; Bases</b>	Two weeks
<b>Organic Chemistry</b>	Two weeks

**Lab Work: Experiments (See dept. rubrics for grading criteria)**

The following list of labs are examples of ways to fulfill the learning outcomes for the course.

<b>EXPERIMENTS</b>
Paper chromatography – separation of inks
Spectrophotometry
Molecular Models and Bonding
Moles
Titration - acetic acid in vinegar / Chloride
pH Measurements / rain water
Measurement of %fat in potato chips
Organic synthesis of aspirin
Plastics around the home

## II. Course Learning Outcomes

<b>Course Learning Outcomes</b> Upon successful completion, students will:	<b>Methods of Assessment</b>
<p><b><u>Lecture:</u></b></p> <ol style="list-style-type: none"><li>1. Define the fundamental properties of matter.</li><li>2. Classify matter, compounds, and chemical reactions.</li><li>3. Identify trends in chemical and physical properties of the elements using the Periodic Table.</li><li>4. Write chemical formulas.</li><li>5. Write and balance chemical equations.</li><li>6. Use the rules of nomenclature to name chemical compounds.</li><li>7. Define the types and characteristics of chemical reactions.</li><li>8. Convert units of measure and demonstrate dimensional analysis skills.</li></ol> <p><b><u>Lab:</u></b></p> <ol style="list-style-type: none"><li>1. Use basic apparatus and apply experimental methodologies used in the chemistry laboratory.</li><li>2. Demonstrate safe and proper handling of laboratory equipment and chemicals.</li><li>3. Conduct basic laboratory experiments with proper laboratory techniques.</li><li>4. Make careful and accurate experimental observations.</li><li>5. Relate physical observations and measurements to theoretical principles.</li><li>6. Interpret laboratory results and experimental data, and reach logical conclusions.</li><li>7. Record experimental work completely and accurately in laboratory notebooks and communicate experimental results clearly in written reports.</li></ol>	<ol style="list-style-type: none"><li>1. Quizzes, Final Exam, Exit Exams</li><li>2. Quizzes, Final Exam, Exit Exams</li><li>3. Quizzes, Final Exam, Exit Exams</li><li>4. Quizzes, Final Exam, Exit Exams</li><li>5. Quizzes, Final Exam, Exit Exams</li><li>6. Quizzes, Final Exam, Exit Exams</li><li>7. Quizzes, Final Exam, Exit Exams</li><li>8. Quizzes, Final Exam, Exit Exams</li></ol> <p><b>Labs assessed by:</b></p> <p>formal lab report, lab quiz, homework assignment, and/or exam question</p>

## III. Required Text(s), Optional Text(s) and/or Materials to be supplied by Student.

Tro; *Introductory Chemistry* Fourth Edition,

**IV. Suggested Course Maximum** – Sugar Land /FBTC 32 lecture and lab; Bay City/ WH 24 lecture and lab

**V. List any specific spatial or physical requirements beyond a typical classroom required to teach the course.**

Chemistry Lab required for lab component

**VI. Course Requirements/Grading System – Describe any course specific requirements such as research papers or reading assignments and the generalized grading format for the course**  
**Evaluative Procedures:**

1. Three major tests
2. Several ten-minute tests (announced and unannounced)
3. Problem assignments
4. Question assignments
5. Laboratory reports
6. Final examination
7. Dept. Gateway Exam (Dept. Head will provide a copy to you.)

The following method is used to arrive at the final grade:

All tests, assignments, etc.	50%
Laboratory grade	25%
Final examination	25%

The grade classifications as outlined in the College Catalog are employed:

A	Excellent 90-100
B	Good 80-89
C	Average 70-79
D	Poor 60-69
F	Failure 59-below
W	Withdrawn

**VII. Curriculum Checklist**

- **Academic General Education Course** (from ACGM – but not in WCJC Core)  
No additional documentation needed

- **Academic WCJC Core Course**  
Attach the Core Curriculum Review Forms

- Critical Thinking
- Communication
- Empirical & Quantitative Skills
- Teamwork
- Social Responsibility
- Personal Responsibility

- **WECM Courses**  
If needed, revise the Program SCANS Matrix & Competencies Checklist.



**Core Curriculum Review Form**

Foundational Component Area: **Life & Physical Sciences**

Course Prefix & Suffix: \_\_\_\_\_

Core Objective: **Critical Thinking Skills**—to include creative thinking, innovation, inquiry, and analysis, evaluation and synthesis of information

*Student Learning Outcome supporting core objective:*

*For each core objective, there must be at least two different methods of assessment.*

SLO Status	Student Learning Outcome (SLO)	Learning Activity	Assessment
The SLO is:	Insert SLO (from Administrative Master Syllabi) below	Provide a brief name and description of the sample learning activity:	Provide a brief name and description of the sample quiz, exam, rubric, assignment, etc. for assessing the objective:
<input type="checkbox"/> Existing <input type="checkbox"/> Revised <input type="checkbox"/> New <input type="checkbox"/> State Mandated			
<input type="checkbox"/> Existing <input type="checkbox"/> Revised <input type="checkbox"/> New <input type="checkbox"/> State Mandated			
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Department Head: \_\_\_\_\_

Date: \_\_\_\_\_



**Core Curriculum Review Form**

Foundational Component Area: **Life & Physical Sciences**

Course Prefix & Suffix: \_\_\_\_\_

Core Objective: **Communication Skills**—to include effective development, interpretation and expression of ideas through written, oral and visual communication

*Student Learning Outcome supporting core objective:*

*For each core objective, there must be at least two different methods of assessment.*

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Department Head: \_\_\_\_\_

Date: \_\_\_\_\_



**Core Curriculum Review Form**

Foundational Component Area: **Life & Physical Sciences**

Course Prefix & Suffix: \_\_\_\_\_

Core Objective: **Empirical and Quantitative Skills**—to include the manipulation and analysis of numerical data or observable facts resulting in informed conclusions

*Student Learning Outcome supporting core objective:*

*For each core objective, there must be at least two different methods of assessment.*

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Department Head: \_\_\_\_\_

Date: \_\_\_\_\_



**Core Curriculum Review Form**

Foundational Component Area: **Life & Physical Sciences**

Course Prefix & Suffix: \_\_\_\_\_

Core Objective: **Teamwork**—to include the ability to consider different points of view and to work effectively with others to support a shared purpose or goal

*Student Learning Outcome supporting core objective:*

*For each core objective, there must be at least two different methods of assessment.*

SLO Status	Student Learning Outcome (SLO)	Learning Activity	Assessment
The SLO is:	Insert SLO (from Administrative Master Syllabi) below	Provide a brief name and description of the sample learning activity:	Provide a brief name and description of the sample quiz, exam, rubric, assignment, etc. for assessing the objective:
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Department Head: \_\_\_\_\_

Date: \_\_\_\_\_