Course Syllabus

1. Course Information
   **Alpha numeric Codification:** QUIM 4998  
   **Course Title:** Undergraduate Research I  
   **Number of credits:** One to three credit hours  
   **Contact Period:** Three to nine hours per week

2. Course Description
   **English:** Introduction to chemical research under the supervision of professors of the department.  
   **Spanish:** Introducción a la investigación química bajo la supervisión de profesores del departamento

3. Pre/Co-requisites and other Requirements: Prerequisite: Authorization of the Director of the Department

4. Course Objectives:
   At the end of the semester the student will be able to:
   a. explain the objectives of the assigned project and its connection with the long term goals of the research conducted at the laboratory of the faculty advisor.  
   b. explain the background of the research project and the theory behind the experiments.  
   c. keep a complete and factual record of the research performed in a laboratory notebook.  
   d. follow safety protocols, identify the hazards and appropriate handling of the substances and materials used in the research project.  
   e. interpret and evaluate results after doing the necessary readings, and with the assistance of the research advisor.  
   f. apply the assigned techniques, and protocols, including instrumental techniques in the characterization of their systems.  
   g. prepare a final report following the requirements established by the advisor.

5. Instructional Strategies:
   a. research  
   b. others: may include discussions in group meetings, seminars, and presentations

6. Minimum or Required Resources Available:
Research laboratory/facilities: Materials, equipment, and physical facilities vary with the research project.

7. Course Timeframe and Thematic Outline:

<table>
<thead>
<tr>
<th>Outline*</th>
<th>Contact Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction: Syllabus, safety rules, how to keep a laboratory notebook</td>
<td>3</td>
</tr>
<tr>
<td>and how to prepare a report</td>
<td></td>
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<tr>
<td>Discussion of the project and related literature</td>
<td>3</td>
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<tr>
<td>Laboratory techniques and methods</td>
<td>3</td>
</tr>
<tr>
<td>Research experiments</td>
<td>12</td>
</tr>
<tr>
<td>Discussion of progress report</td>
<td>3</td>
</tr>
<tr>
<td>Research experiments</td>
<td>12</td>
</tr>
<tr>
<td>Interpretation and discussion of results</td>
<td>6</td>
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<tr>
<td>Presentation and discussion of the final report</td>
<td>3</td>
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<tr>
<td>*Note: Outline may be different for each professor</td>
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<tr>
<td>Total Hours (equivalent to contact period)</td>
<td>45</td>
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</table>

8. Grading System:
   Quantifiable (letters)

9. Evaluation strategies:
   Laboratory work, notebook and final report (or portfolio).
   Note: These may vary among instructors.

10. Bibliography:
    Varies with the research project. Students are highly encouraged to perform a library search on their research project, including online library resources.

11. According to Law 51 students will identify themselves with the Institution and the instructor of the course for purpose of assessment accommodations. For more information, please call the Student with Disabilities Office which is a part of the Dean of Students Office at (787) 265-3862 and (787) 832-4040, extensions 3250 and 3258.