COURSE OUTLINE

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>BIO295</td>
<td>Honors Research in Biology II</td>
<td>2</td>
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<thead>
<tr>
<th>Hours:</th>
<th>Co- or Pre-requisite</th>
<th>Implementation</th>
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<tbody>
<tr>
<td>lecture/Lab/Other</td>
<td>BIO294</td>
<td>Spring 2017</td>
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<tr>
<td>0/5/0</td>
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**Catalog description:**
A continuation of BIO294, Honors Research I
Under the guidance of an area sponsor in an industrial or academic environment, students participate in a biology research project. This course requires a written and oral presentation to students and faculty. It may be applied to fulfill a technical elective requirement in the Biology program or other programs upon the program coordinator’s approval. 5 laboratory hours per week

Participation in Biology, Chemistry and Physics laboratory courses is permitted provided the student has completed the required prerequisites, is a minimum of 16 years of age or by the permission of the instructor and the Dean of the division.

**Required texts/other materials:**
Student Lab Notebook

**Revision date:**
January 2017

**Course coordinator:**
Professor Diane Hilker, Rm. MS122
609-570-3367
Hilkerd@mccc.edu

**Course Competencies/Goals:**
*The student will be able to:*
- Apply skills research skills from BIO294, facilitating growth and independence in the laboratory
- Construct, execute then evaluate a more detailed research plan in a research laboratory related to biology
- Develop skills in observation, organizing and analyzing data, synthesizing information, and communicating conclusions orally and in writing
- Demonstrate a working knowledge of basic biological concepts and methods used in a research laboratory
- Conduct literature searches and communicate findings orally and in writing
- Perform experimentation using proper scientific and laboratory safety procedures and maintaining an accurate and complete laboratory notebook
- Construct slides and present the research project to faculty and students
Course-specific General Education Knowledge Goals and Core Skills:

**General Education Knowledge Goals**

**Goal 1. Communication.** Students will communicate effectively in both speech and writing.

**Goal 2. Mathematics.** Students will use appropriate mathematical and statistical concepts and operations to interpret data and to solve problems.

**Goal 3. Science.** Students will use the scientific method of inquiry, through the acquisition of scientific knowledge.

**Goal 4. Technology.** Students will use computer systems or other appropriate forms of technology to achieve educational and personal goals.

**MCCC Core Skills**

**Goal A. Written and Oral Communication in English.** Students will communicate effectively in speech and writing, and demonstrate proficiency in reading.

**Goal B. Critical Thinking and Problem-solving.** Students will use critical thinking and problem solving skills in analyzing information.

**Goal D. Information Literacy.** Students will recognize when information is needed and have the knowledge and skills to locate, evaluate, and effectively use information for college level work.

**Goal E. Computer Literacy.** Students will use computers to access, analyze or present information, solve problems, and communicate with others.

**Goal F. Collaboration and Cooperation.** Students will develop the interpersonal skills required for effective performance in group situations.

**Evaluation of student learning:**

Research Advisor Evaluation: 33%
*Mid-semester Project Review: 33%
**Final Presentation: 33%

* Determination by MCCC Advisor
** Determined by both the MCCC Advisor & Research Advisor

Forms below

**Academic Integrity Statement:**

Cheating of any kind is not tolerated. This includes copying papers or website information or presenting another person's work as one's own, looking at a student's paper during a test or quiz, looking at notes during an exam or quiz, obtaining information about an exam, quiz, or any other information that other students do not have and the instructor does not intend them to have, and talking during an exam or quiz. Other academic integrity violations include giving answers to or writing papers for another student, submitting a paper which includes words or the creative work of another without acknowledging the source, presenting another individual's work as your own, and falsifying data or bibliographic entries. Any observed instance of cheating is punishable by confiscation of the work and being assigned a grade of zero. All violations of academic integrity will be reported to the Academic Integrity Committee. For more information, consult the Student Handbook.
STUDENT
Name: _____________________________ Student ID #: ______________
e-mail address: ______________________ Phone # ______________________

MCCC ADVISOR
Name: _______________________ e-mail address: ______________ Phone#:___________

RESEARCH ADVISOR
Name: _______________________ Facility: _______________ e-mail address: ____________

Student Responsibilities: Please read carefully.

1. You are required to devote a minimum of 5 hours/week of time in the research lab working on your project. Under no circumstances are you to work on unauthorized lab projects.

2. Specific days/time in the lab should be coordinated and agreed upon by you and the Research Advisor. In the event of an absence, it is your responsibility to notify the Research Advisor and make-up the missed scheduled time.

3. On a weekly basis, you are to contact the MCCC advisor either by e-mail or verbal communication, to keep them informed of your progress in the lab.

4. Between weeks 6 and 8 of the semester, the MCCC advisor will schedule a meeting at the facility so that you can review your research project. Scheduled meeting time will be____________.

5. During the 15th week of the semester you will present your research project at MCCC to the Science faculty, invited science students, guests and Research Advisor. The presentation should be about 15 to 20 minutes in length and should include the use of overhead transparencies or Power Point. Your presentation must be reviewed by the MCCC advisor several days prior to the presentation. Presentation date tentatively will be ____________.

6. You are required to keep a Research Log Book of your research that is up-to-date, accurate and thorough.

7. Your grade will be calculated as follows:
   - Research Advisor Evaluation: 33%
   - Mid-semester Project Review: 33%
   - Final Presentation: 33%

   *Determination by MCCC Advisor
   **Determined by both the MCCC Advisor & Research Advisor

Date: ________________________________ Student Signature: _______________________
MCCC Advisor Signature: _______________________________________________________
Research Advisor Signature: ______________________________________________________

When signed, please forward to the MCCC advisor.
Final Student Evaluation by Research Advisor

Date: __________________________

Student: ________________________________________________________________

Research Advisor: _________________________________________________________

Please check the appropriate response for each question regarding the performance of the above-mentioned student at your facility this semester.

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<tr>
<th>Question</th>
<th>Excellent</th>
<th>Good</th>
<th>Satisfactory</th>
<th>Unsatisfactory</th>
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<tbody>
<tr>
<td>1. Preparation for lab</td>
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<td>2. Attendance and punctuality</td>
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<td>3. Cooperation with you</td>
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<tr>
<td>4. Cooperation with others</td>
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<td>5. Attitude</td>
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<td>6. Laboratory performance</td>
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<td>7. Organizational skills</td>
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<td>8. Data collection skills</td>
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<td>9. Quality and thoroughness of Research Log Book</td>
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<td>10. Progress by the end of semester</td>
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On an average, how many hours/week did the student devote to the research project?

5 hours/week ______________ more than 5 hours/week ______________

Any additional comments:

_____________________________________________________________________________________________________
_____________________________________________________________________________________________________
_____________________________________________________________________________________________________

Numerical Project Grade (33% of final grade): ________________

This evaluation should be completed before the student’s presentation and forwarded to ________________, MCCC Advisor.