

BCH 493

SPECIAL PROBLEMS IN BIOCHEMISTRY (SPB)

****On Campus Project****

GENERAL INFORMATION AND PROCEDURES

Course Objective - To provide an on-campus academic framework within which students may learn through work-related experiences and apply knowledge gained from their academic course work.

Credits - A maximum of 3 credit hours will be allowed per summer or semester of SPECIAL PROBLEMS IN BIOCHEMISTRY (SPB). Four-year students will be permitted to earn a maximum of 6 credit hours in any combination of ELE (492) and Special Problems (493), etc. SPB credit hours can be used to fulfill the three hours of research requirement or as free electives.

Types of Experience

1. *Must be on-campus.* External Learning Experience (BCH 492) must be used for off-campus learning experiences and BCH 493 Special Problems in Biochemistry must be used for on-campus learning experiences. (Branch Research Stations and Extension Services are a part of the NCSU campus.)
2. *Must be a new experience each work period.* For example, a second summer experience doing essentially the same thing as in a previous summer would not qualify for additional credit.
3. *Must relate to the student's on campus academic program.* (Academic advisor and Undergraduate Coordinator will verify the appropriateness of work experience.)
4. *Research cannot be multi-authored writing exercise by the student.* It will be accepted only if the paper was published under the student's name.

Grading: S-U grades will be given. Grading will be based on the completeness and quality of the **FINAL REPORT** and evaluation of the research experience by the Academic Advisor *and* the Departmental Undergraduate Coordinator.

Presentation at Undergraduate Research Symposium: Student will present their research project at the symposium. Documentation of participation can be a photo or printed program.

Responsibility of Student Participant

1. *Memorandum of Agreement.* Student is responsible for: (a) arranging the work experience with the employer/supervisor; (b) *completing the Memorandum of Agreement form prior to the beginning of the work experience;* (c) having the academic advisor review and sign the form; and (d) submitting the final report at the appropriate time. The student is encouraged to complete the memorandum prior to starting the research experience.
2. *Registration.* Once the memorandum of agreement is completed and signed by the student, research mentor and academic advisor, it will be returned to the Departmental Undergraduate Coordinator's office. Upon the approval of the Undergraduate Coordinator, the student will be enrolled in BCH 493 in the appropriate semester.
3. *Work and Final Report.* Student is responsible for carrying out all tasks set forth by the employer/supervisor, and for the preparation of a **FINAL REPORT**, which must be approved by the research mentor and academic advisor prior to submission to the Departmental Undergraduate Coordinator (128 Polk Hall). This report is due *prior to the start of Final Examinations* in the semester or summer session in which the student is enrolled in BCH 493. (Failure to meet this deadline will result in an Incomplete or Unsatisfactory grade.)

RECOMMENDED PROCEDURE FOR PARTICIPATION IN BCH 493 EXTERNAL LEARNING EXPERIENCE

1. Determine the work experience to be pursued. This requires consultation with your academic advisor, Departmental Undergraduate Coordinator and with your prospective employer/supervisor.
2. Complete the Memorandum of Agreement form and turn in to your academic advisor *prior to the start of your training period*.
3. Once you have obtained these signatures, submit the Memorandum of Agreement to the departmental Undergraduate Coordinator for the final signature. You will be enrolled in BCH 493 in the appropriate semester.
4. Meet all requirements of your research mentor during the training period. Consult with your academic advisor as necessary.
5. Prepare the **FINAL REPORT** and submit it to your Research Mentor for approval early enough so that you can submit it to your academic advisor by the deadline specified in your Memorandum of Agreement .
6. Once your final report is approved by your academic advisor, submit your report to the departmental Undergraduate Coordinator, who will be responsible for filing your grade(S or U).

GUIDELINES FOR SPB FINAL REPORT*

1. State the hypothesis and/or objectives of your research. What were you trying to accomplish in your work experience? (The objectives will vary in number and scope.)
2. Describe the specific types of research you did. What equipment did you use? What techniques did you employ? (These do not need to involve instruments or hardware).
3. Describe the results. (What did you accomplish with your activity?) Include appropriate Tables and Figures.
4. Provide a Discussion of your results, and Conclusions that can be drawn. Include appropriate literature citations.
5. Finally, in a personal way, tie it all together. Did your level of expertise increase? Did you progress in your level of responsibilities? What did you learn about yourself? What are your attitudes and talents for the research you did? How do you see this experience affecting your career? Single out specific instances that were especially rewarding. How much have you grown professionally?

*The Final Report should be typed. A minimum of 10 double-spaced pages should be submitted. Pages must be numbered

{COVER PAGE SAMPLE- Fill in all information specified by the brackets on your cover page}

[Title]

by [Your Name]

Under the direction of : [Research Mentor]

Final Report to fulfill the requirements for

BCH 493

[Fall/Spring/Summer] Semester of [Year]

I certify that the student has worked the specified number of hours and this report reflects the work performed:

Research Mentor

I certify that I have read and approve this report :

Academic Advisor

I certify that the student has completed the requirement for this research experience:

Undergraduate Coordinator

I presented a poster of my research at the following symposium:_____

_____ Date:_____
Student

**DEPARTMENT OF BIOCHEMISTRY
BCH 493
SPECIAL PROBLEMS IN BIOCHEMISTRY (SPB)
MEMORANDUM OF AGREEMENT**

PLEASE PRINT – Use Ink Pen

Student _____ ID.# _____ Major: _____

Local Address _____ Phone (____) _____

Email Address _____ Phone (____) _____

Academic Advisor _____ Dept. _____ Phone (____) _____

Research Mentor _____ email _____

Research Mentor's Address _____ Phone (____) _____

Employment Period Beginning _____ Ending _____

Student will be paid for this activity Yes [] No [] {Check appropriate box}

Minimum hours per Week _____ {A} Number of Weeks _____ {B}

Calculate: $(A \times B) / (60 \times 2 \{\text{if paid}\}) =$ _____ . _____ {Omit the factor of 2 if student is not paid.}

Number of credit hours:

1 [] 2 [] 3 [] {This is the truncated calculation result.}

Student will be enrolled in: Fall [] Spring [] SSI [] SSII [] of Year _____

{The report will be due at the end of that semester.}

Experience and/or activities for the student (cooperatively developed and agreed upon by the student, the SPB Academic Advisor, and research mentor):

Broad description of activity and/or experience _____

Specific types of research procedures/techniques that will be done:

Estimated % time allocation:

1. _____

2. _____

3. _____

4. _____

Management and decision-making experiences in which student can participate:

What do you {the student} expect to gain from this experience (objectives)?:

Additional comments by SPB Research Mentor _____

Additional comments by Academic Advisor _____

FINAL WRITTEN REPORT on the SPB experience is due _____
{no later than the last day of the semester}

I anticipate presenting my research at the _____ symposium on _____

We, the undersigned, agree to conform to the Program Guidelines and with this Memorandum of Agreement:

Signed _____ Date _____
Student

Signed _____ Date _____
Research Mentor

Signed _____ Date _____
Academic Advisor

Signed _____ Date _____
Departmental Undergraduate Coordinator

Note: Upon completion of this form, return it to the Office of the Undergraduate Coordinator, Room 126 Polk Hall at which time the student will be enrolled in BCH 493.