Request for Permission to Register for a Biology 390 Independent Study Course

The Biology Department provides an opportunity for a student to do independent study, research and/or reading when he/she has demonstrated competence in the academic discipline involved and has shown an ability to study on his/her own initiative. Independent study will involve the student in research and/or reading not covered in the regular course offerings of the Biology Department.

Independent study projects must be defined in advance of registration for the course. A student wishing to register for Biology 390 must complete this form in consultation with a supervising instructor. Biology 390 courses must be completed within an interim or a regular semester.

Independent study may carry 2 - 4 semester hours of credit. No more than 4 semester hours of such study may be applied toward a biology major and no more than 8 semester hours may be applied toward Calvin's graduation requirements. To be eligible for independent study a student must have completed at least four courses in Biology.

On a separate printed sheet describe the proposed project, including the research and/or reading that will be done, and the basis for determining the level of achievement.

Student Name

Class Level

Student No. Term Year

Student Email # of Hours

Biology 390

☐ 1 Semester Hours
☐ 2 Semester Hours
☐ 3 Semester Hours
☐ 4 Semester Hours

Supervising Instructor Name (Printed) Academic Advisor Name (Printed)

Supervising Instructor Signature Date Academic Advisor Signature Date

Registrar Date Department Chairperson Date
Request to Apply for Biology 390 Independent Study

Please note: You must include an “unofficial” copy of your transcripts with this application.

List your biology course(s) that are in progress.

List your chemistry course(s) that are in progress.

Do you have laboratory experience other than that associated with courses? If so, describe briefly.

Normally, independent study involves a laboratory research project. What aspect(s) of laboratory work appeals to you most?

Do you have any moral or ethical objections to the use, within federal and state guidelines, of living animal models (e.g., mice) for biomedical research? If yes, explain briefly.

What do you see as the long-term benefit of the research project to you?

Please return this form to the Supervising Instructor or to the Department Chairperson
Guidelines Regarding Student Participation in a Biology 390
Independent Study Course
(laboratory or field-based research format)

Independent Study Projects
Calvin College provides an opportunity for students to do independent research or reading when they have
demonstrated their competence in the academic discipline(s) involved and have shown an ability to study on
their own initiative. An independent study must include substantial research and/or reading in an area not
covered in a regular course offering of the Biology Department.

The Biology 390 course is an opportunity for a student to conduct an independent research project under the
guidance of a Biology Department faculty member. Projects for such study must be defined in advance of
registration and must be approved by the instructor directing the study, the departmental chairperson, and
the Registrar. Each course must be completed within the term. Because independent study projects require
considerable time of the instructor as well as the student, an instructor is not obligated to approve an
independent study and is expected to limit the number of students accepted.

Eligibility for an Independent Study Project
To be eligible for an independent study, a student must have completed four courses in biology and must
have an overall GPA of at least 3.3 in those courses. An independent study shall carry credit of either 2 or 4
semester hours. No more than 4 semester hours of such study may be applied toward a biology major and no
more than 8 semester hours of such study may be applied toward graduation requirements.

Expectations of Student Participating in Independent Study
To maximize the benefit of an independent study project to a student, the Biology Department requires that
the following items be included in a course:

1. Preparation. For a project to have significance, it must be well-conceived and tied to the existing
knowledge in the field. To assure that a project has such a basis, the student is required to complete:

   a. A bibliography (a listing of a body of literature appropriate to the project). As an option, a
      student may be required to complete an annotated bibliography, i.e., a bibliography accompanied
      by a brief paragraph for each entry indicating the significance of the item. A bibliography may
      also include a report of the sources searched. The bibliography may be submitted at the end of
      the semester.

   b. A project proposal. The proposal should be prepared in rough form for the initial course
      proposal, but should be prepared in detail at the beginning of the semester in consulta-
      tion with the supervising faculty member and the literature. A rough project proposal must be completed
      before the project is undertaken.

2. Project. The heart of any scientific study is the data collected. Securing useful data entails appropriate
experiment design, careful data collection and regular recording and review of work in progress. To
assure that adequate and appropriate data are collected, the following items will be an ongoing part of
the project:

   a. A log of work done on the project, i.e., a laboratory and/or field notebook in which records, dates,
times, places, experimental conditions, and data are kept.

   b. A weekly progress review, i.e., a meeting with the supervising faculty member to review work
      done in the past week and the work planned for the following week. The log should be clearly
      labeled and kept up-to-date so that data, sites visited, experimental techniques, data analyses,
      etc. can be reviewed at the weekly progress sessions. The log will be submitted with the final
      project report.
3. **Report.** The proper end of a research project is a report on the study and its findings. The report may be a formal paper or a poster presentation. A written report will include the usual components of a scientific paper (title, abstract, introduction, methods and materials, results, discussion, literature cited as well as supporting tables and figures). The style for citations, figures, tables, etc. in the paper will be that of a major journal in the disciplinary area of the study. A written report is required of students taking Biology 390 for Honors credit.

Instead of, or in addition to the written report, a student may be required to present the study in poster form. The style of the poster will be that which is common to the particular disciplinary area involved in the study and will be arranged in consultation with the supervising faculty member. A student applying for investigations exemption on the basis of his or her Biology 390 experience will present a seminar, paper or poster as the final report of the result of that study.

Students will also be encouraged, but not required, to present a seminar to the Biology Department students and staff if the study and data are appropriate.