

## Guide to Independent Study in MCD Biology

### 1. Purpose of Independent Study

Independent study in MCDB provides an opportunity to earn academic credit for a research project. Participants receive “hands-on” experience that strengthens their preparation for graduate school, professional training in the biomedical sciences and for employment in academic or commercial laboratories.

Required MCDB laboratory courses introduce basic laboratory techniques, but time limitations and sizes of lab sections limit the research experience that can be provided. A well-executed research project begun no later than the second semester of a student’s junior year together with a GPA of at least 3.3 allows a student to participate in Honors

### 2. Criteria for Independent Study

The college of Arts and Sciences and the Department of MCD Biology both have specific policies regarding what constitutes an appropriate independent study project. These are:

**Academic value:** Independent Study must serve a legitimate academic purpose. College policy specifically forbids the use of independent study credit to “pay” students for non-academic work or internship activities. The critical difference between eligible and ineligible projects is the degree of intellectual involvement of the student. To receive independent study credit, the student must participate actively in the planning, design and interpretation of experiments as well as perform the laboratory procedures required for their completion. Service type work, such as cleaning laboratory glassware, routine preparation of reagents or preparing a lab for a laboratory course does not qualify for independent study credit. Internship type experiences that are comparable to being employed as a junior technician performing experiments that are designed and interpreted by a supervisor do not qualify as Independent Study.

**No substitution for regular coursework:** College policy prohibits using independent study credit as a substitute for a regular course that is not offered during a particular semester. *Individualized Instruction* arranged through Continuing Education is available for this purpose. College policy also forbids use of independent study credit to meet CORE Curriculum requirements. However, a maximum of 6 hours of upper division MCDB Independent Study (MCDB 4840) may be used as an upper division MCDB Elective.

**Work done elsewhere:** MCDB independent study credit can be granted for research projects done elsewhere, including projects at other academic, research, or commercial institutions. The following restrictions apply:

1. Approval must be obtained BEFORE the project is started.
2. There are no specific restrictions on where the project may be done. To be accepted the project must meet all College and MCDB criteria for independent study credit.
3. An MCDB faculty member who is qualified to sponsor independent study research must review the proposed project, sign the contract, and assign the grade

for the project in consultation with the research director who actually supervises the project.

4. The project must be appropriate for an MCDB major. This decision rests with the MCDB faculty member who agrees to assign the grade and with the MCDB Coordinator of Independent Study.

**Laboratory projects:** All research conducted must be in compliance with the standards established by the Office of Research Integrity (ORI). Details are at: <http://www.colorado.edu/VCResearch/ORI/>

**Non-laboratory projects:** MCDB independent study typically involves laboratory research. However, projects based entirely on library research or computerized analysis may be proposed and will be evaluated on an individual basis. College policy also allows for independent study credit to be given for doing extra work in association with a regular course, provided that all of the other requirements for independent study credit are fully satisfied.

### **3. The Independent Study Contract**

The independent study contract is required by the College of Arts and Sciences. Its purpose is to insure that the student and the faculty sponsor have agreed in detail on the nature of the project, the accomplishments that are expected, the types of reports that must be submitted and the dates when they are due. The MCDB Independent Study Contract may be obtained from the MCDB Student Affairs Office A1B48.

**Objectives:** The faculty member and the student must agree on a project and identify reasonable objectives for the semester. For the first semester, the objectives may consist primarily of learning to perform certain types of experiments, interpreting the results and planning additional experiments based on the results. For continuing projects, more specific goals should be outlined. Because research is unpredictable, the faculty sponsor and the student may agree to alter the project to either follow an unexpected lead or to terminate a nonproductive approach. Major changes should be reported in written form to the Coordinator for MCDB Independent Study.