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Graduate Studies Molecular, Cellular, & Developmental Biology (MCDB)

Fall 2010

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The pages that follow summarize our graduate program and degree requirements. For more information, you can contact:

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Contents

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Synopsis of a Graduate Career

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Submission of a Ph.D. thesis containing the results of original, publishable research remains the culminating and defining event of a graduate career. Graduate students achieve that final event in stages, progressing from mostly academic work to full-time research.

During the first year, students take Core Courses designed to introduce topics that the faculty consider essential for anyone pursuing research in cell biology, developmental biology, molecular biology, or genetics,. They also take a course during the first semester on how to critically evaluate scientific research papers. In addition, after familiarizing themselves with the faculty and the research interests of the labs, they begin research by engaging in brief research projects in three laboratories ("rotations").

At the end of the first year, students select a research laboratory in which to do their thesis research and assemble a thesis committee to help oversee their progress toward the PhD. At this point, the student's research usually begins in earnest.

During the second year, research occupies an increasing portion of a student's time, and formal academic work usually occupies a decreasing fraction. We require second-year MCDB students to enroll formally in MCDB Journal Club (for one semester) and make an oral presentation. All second-year students also take their final Core Course, a course on writing grant proposals, and begin fulfilling the Advanced Course requirement.

The culminating event of the second year is the Preliminary Examination, which students take during the summer. This examination seeks to determine whether, through his/her academic and independent study and research experiences, a student has successfully prepared himself or herself for independent work. Students who pass the exam are admitted to formal candidacy for the Ph.D. degree.

Once admitted to candidacy, students spend the majority of their remaining time in graduate school working on their research projects. However, the thesis is not the sole remaining requirement. First, every student must do some teaching during the course of her/his graduate career. Second, each student must enroll (during year 3) in a half-semester course devoted to research ethics and other aspects of the life of a scientist. Finally, we expect all graduate students, irrespective of year, to attend the weekly MCDB research seminars given by visiting speakers.

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The First Year of Graduate School

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FALL SEMESTER: Students take 4 courses: B501, L585, L523, and L501

B501, Integrated Biochemistry (3 credits), and L585, Molecular Genetics (3 credits), are the first of our "Core Courses" for all graduate students. These courses, most of which are taken in the first year, include the most essential introductory material that a graduate student needs to begin his or her career. These courses are taken by both MCDB and Microbiology students. We think a common core is an efficient an exciting way to begin graduate study, and provides each incoming class with a common shared experience. The instructors for the 2010 Fall Core are:

B501*	Integrated Biochemistry	Drummond, Kao
L585**	Molecular Genetics	Nelson, Andrews

*Students who have not had Biochemistry or Molecular Biology or who consider their background in those areas weak may prefer to take C483 Biological Chemistry or C484 Biomolecules and Catabolism, instead of B501. Although C483 and C484 are formally advanced undergraduate courses, they carry graduate credit as well. We would encourage students who take C483 or C484, especially those who end up joining labs with an emphasis on biochemical approaches, to take B501 during the second or third year of graduate school. When taken later, B501 would count as an Advanced Course. Deferring B501 requires Director approval.

**Students who have not had Genetics or who have a weak background in Genetics should consider taking M480 Microbial and Molecular Genetics (undergraduate level) their first year and L585 Molecular Genetics their second year. Deferring L585 until the second year requires Director approval.

L523 (1.5 credits) is Critical Analysis of the Scientific Literature. This course meets one evening a week for half of the semester (8 weeks). Each session focuses on detailed examination of the techniques, results, and interpretations presented in a scientific paper. The papers chosen and discussion format used are designed to teach students how to critically evaluate scientific data and writing.

L501 (4.5 credits) is "research rotations". The rotations are designed to enable students to sample the interests, approaches, and styles of individual laboratories in some depth. It is expected that rotating students will participate in on-going research, usually by carrying out a small project under supervision. Although the 5 weeks of a rotation are rarely long enough to permit a project to be finished, this period will provide a student with considerable opportunity to learn how the laboratory approaches science. It is expected that every student will take three rotations. Exceptionally, a forth rotation can be taken with approval of the MCDB Program Director.

Faculty mentor: A faculty mentor will be assigned to each incoming graduate student. Our mentoring program is designed to offer every student an "advisor" prior to their settling into a thesis lab. Students will meet periodically with their mentor throughout the first year, and should consult with him/her if questions or problems with coursework or rotations arise.

Selecting a rotation laboratory: Throughout the fall semester, students encouraged to seek out and make contact with faculty members whose research peaks their interest. In addition to meeting with faculty one-on-one, students should also feel free to talk other students and postdocs, attend lab meetings (with approval of the PI) and journal clubs, and read the papers published by our faculty. These are all excellent way to find a laboratory that is well suited to your interests.

Laboratory selection for the first rotation period (Aug 30-Oct 1, 2010)
By the end of the day on Thursday, August 26th, first-year students must choose three laboratories that they are interested in for their first rotation period. A ranked list of laboratories, along with any comments, should be sent to the MCDB director (Scott Michaels, michaels@indiana.edu). This list pertains only to the first rotation period. For the second and third rotation periods, you will submit separate lists, which may contain the same or different faculty.

Laboratory selection for the second rotation period (Oct 4-Nov 5, 2010)
By the end of the day on Friday, Sept 24th, first-year students must choose three laboratories that they are interested in for their second rotation period. A ranked list of laboratories, along with any comments, should be sent to the Director of the relevant graduate program.

Laboratory selection for the third rotation period (Nov 8-Dec 10, 2010)
By the end of the day on Friday, Oct 29th, first-year students must choose three laboratories that they are interested in for their third rotation period. A ranked list of laboratories, along with any comments, should be sent to the Director of the relevant graduate program.

Entry into a Research Laboratory: At the end of the third rotation students determine their research lab and mentor. This is a negotiation process in which the faculty and the students attempt to find a productive and appropriate fit. Students are not guaranteed positions in laboratories, although in practice this is rarely an issue. If students desire additional rotations, they may apply for these with the MCDB Program Director. It is **very important** to note that entry into a research lab is a requirement for our graduate program, and students must have joined a lab by the beginning of their second year at the latest. Exceptions will be made in only the rarest of cases.

Selection of the PhD laboratory
By the end of the day on Wed, Dec 1st, first-year students must choose three laboratories that they are interested in for their thesis work. A ranked list of laboratories, along with any comments, should be sent to the Director of your graduate program. If a student feels that none of the rotation labs are suitable, they should meet with the Director of their graduate program.

SPRING SEMESTER: Students take L586 Cell Biology (3 credits), L587 Development (3 credits), and Z620 Molecular Genetics and Bioinformatics (1.5 credits).

The instructors for the 2010 Spring Core are:

L586	Cell Biology	Hu, Pomerening
L587	Developmental Biology	Michaels, Zelhof
Z620	Introduction to Bioinformatics and Genomics	Cherbas

OTHER FIRST-YEAR ACTIVITIES

Seminars: Throughout students' graduate careers, we expect them to attend and participate in our departmental seminar series and journal clubs. A listing of the current week's events can be found at: http://www.bio.indiana.edu/events/index.shtml. In particular, MCDB students are expected to attend the MCDB journal club and the MCDB seminar series (Thursdays at 4pm).

Selecting a Degree Program: At the end of the first year, students select a research lab for their thesis work, set up an Advisory Committee to oversee their thesis research, and decide on the appropriate degree program. We offer 3 different Ph.D. degrees within the MCDB program: Genetics, Molecular Cellular and Developmental Biology, and Plant Sciences. The requirements in the 3 degree programs are very similar. The selection of degree program is dictated by the student's interests and thesis project.

Selecting a Minor: Students must select a minor field distinct from their degree choice. Ordinarily a student will select one of the MCDB degree programs other than his/her own as minor, in which case the Core Program courses meet minor requirements. In some cases, a student may select another minor and must meet any additional requirements set by that minor.

For students from other programs who wish to minor in one of the MCDB degree areas, the requirement is 6 credit hours of work in that field. The MCDB Program Director must approve the selection of courses.

Selecting a Thesis Advisory Committee: All students *must* select at least three members of their advisory committee by the end of their first year and have the names approved by the College Associate Dean for Graduate Education. Preferably all four members should be selected at this time.

English proficiency exam: If a student's native language is not English, he/she must become sufficiently fluent to pass the University A.I. English fluency examination during the first year.

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Graduate School After the First Year

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Summary of course requirements after the first year:

- Grant Writing (Z620) during the second year
- A Journal Club presentation during the second year
- Research Ethics and Careers (Z620) during the third year
- Z620 (2 courses of 1.5 credits), one of which must be offered by the Biology Department and designated as appropriate by the degree program (any year)
- One-semester teaching requirement (any year)

The second year is when thesis research starts in earnest. In addition, students must take two Z620 Advanced Courses, Grant Writing (Z620), and Journal Club. The Z620 Advanced Courses are half-semester (8-week) courses devoted to specialized, advanced subjects. Some will consist mostly of lectures, some will be seminars - probably most will be mixtures. We typically offer 4-6 different Z620 Advanced Courses in any one year, and the offerings change from year to year to give our students maximum diversity. Students may also substitute one or more regular graduate course electives (400 and 500 level graduate courses) for Z620 Advanced Courses; one graduate course is usually the equivalent of two Z620 courses. The titles and instructors for Advanced Courses given in recent years are shown below to provide examples of typical course offerings.

Advanced Courses:

Course	Credit	Instructor
Proteins: Sequence to Stucture/Function	1.5	Ybe

Genomic Approaches to Ecology, Evolution, and Behavior	1.5	Hahn
Evolution of Genes and Genomes	3	Lynch
Macromolecular Structure and Interactions	3	Oakley, Waldman
Drug Design	1.5	Zhang
Molecular Virology and Public Health	1.5	Hardy
Digital Imaging	3	Shaw, Powers, Stein
Developmental Plasticity and Evolution	1.5	Moczek
Drosophila Genetics	1.5	Cook
Plasmids, Conjugative Elements, and Conjugation	1.5	Fuqua
Biomolecular Catalysis	3	Tolbert
Macromolecular Structure and Interactions	1.5	Giedroc
Membranes & Membrane Proteins	1.5	Mukhopadhyay
Structural Bioinformatics	3	Radivojzc
Biostatistics	3	Housworth
The Phylogenetic Comparative Method	1.5	Martins
Microbial Stress Response	1.5	Chen
Macromolecular Drug Discovery	1.5	Di Marchi
Structural Methods	1.5	Ybe
Mentored Teaching	1.5	Zolan
Digital Imaging : Light and Microscopy	3	Shaw, Powers, Stein
Tissue Growth and Cell Death	1.5	Kumar
Advanced Nucleic Acid Biochemistry	1.5	Drummond
Bacterial Signal Transduction	1.5	Winkler
Membranes nd Membrane Proteins	1.5	Mukhopadhyay
Small RNA's in Animal Development	1.5	Sokol
Regulation of Cell Signaling	1.5	Danthi
Microbial Population Biology	1.5	Velicer
Cell Cycle Principles	1.5	Calvi
Biomolecular NMR Spectroscopy	1.5	Giedroc
Regulation of patterning of tissues and organs	1.5	Kumar

Research and the Advisory Committee: For most students, the second year is when research begins in earnest. Sometimes students are tempted to try to fill their schedules with other courses in an effort to meet requirements early. This is not a good idea. It is very important for students to use the second year to become immersed in the research of their chosen lab.

Students must meet with their Advisory Committee by the end of fall semester of their second year; this meeting is required for a student to be eligible to take the Preliminary Exam at the end of the second year (see below). In subsequent years of graduate school, students must meet with their Advisory Committee at least once per 12-month period. A yearly meeting is mandatory. If an additional meeting is deemed necessary, it may be called by the student, the research advisor, or the advisory committee. It is expected that all research advisors who accept MCDB students into their labs will participate in committee meetings. Student preparation for the meetings and thoughtful feedback by committee members help students to: 1) avoid or minimize pursuing unproductive lines of investigation; 2) produce careful and thorough studies; and, 3) think critically and creatively about interpretations and possible future directions. Critical in-depth analysis and discussion of recent data and plans for the overall research project are crucial for the development of any research program. (Faculty do this by writing grants and convincing study sections of the value of their research.)

- Prior to each meeting with the Advisory Committee, students should write up and distribute to the committee members a summary of research efforts, results to date, and plans for the future.
- After each meeting, the Advisory Committee should write up a summary of the meeting and indicate whether the student is making sufficient progress toward completing a thesis. If progress is judged to be unsatisfactory, probation may be recommended (see section below).

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Preliminary Exam at the End of the Second Year

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During the summer following the second year of graduate school students take a Preliminary Examination. The Preliminary Exam is a traditional part of Ph.D. programs. Its purpose is to establish that students have successfully made the transition from purely academic study to independent learning, are adequately prepared for research, and are already making adequate progress toward a thesis. The current format of the Preliminary Exam is as follows. The preliminary exam will be an oral examination designed to determine the student's competency in Genetics, Cell Biology, and Developmental Biology. The exam will not directly involve the student's thesis project. Each Prelim Committee will consist of three faculty members that will asked questions with the goal of determining the students knowledge and understanding in each of these subject areas. Four weeks prior to the oral examination, students will be provided with 3 questions/subject areas on which they will be tested. Students should be aware that, in and of itself, four weeks is insufficient time to prepare for such an examination. Success will depend on building a solid foundation in Genetics, Cell Biology, and Developmental Biology throughout the first two years of graduate school. This is accomplished through courses, seminars, journal clubs, lab meetings, and discussion with colleagues. Thus, being actively involved in all these activities throughout your graduate career will be your best preparation.

A student who does not pass the Preliminary Exam may not continue in the Ph.D. program. On a case-by-case basis, students who are otherwise in good academic standing may be admitted to a program leading to the Masters Degree.

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The Third Year of Graduate School

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During the third year, the main activities are research, seminars, and taking additional Advanced Courses. In addition, we require that students enroll in a course on Research Ethics and Career Development, a half-semester course that explores practical and ethical issues in scientific careers and different types of career options. Some students may also meet the teaching requirement during their third year.

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Satisfactory Progress Toward a Thesis

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After passing the Preliminary Exam, for a student to remain in "good standing" in the MCDB program requires that she/he be making sufficient progress toward completing a thesis. If the research advisor and/or other members of the Advisory Committee become concerned about or dissatisfied with a student's progress or efforts, a meeting of the student with the Advisory Committee must be called to discuss the reason(s) for concern/dissatisfaction. If the Committee determines that the student's progress is not satisfactory, then the student will be placed on probation. The probationary period (usually a semester) will provide an opportunity for the student to demonstrate effectiveness and progress in

research. This research may be conducted in the same lab with the same research advisor or in a new lab with a different research advisor. At the end of the probationary period, if the Advisory Committee judges the student's progress to be satisfactory, then probation will be lifted. If the Advisory Committee judges the student's progress to remain unsatisfactory, then the student will be required to leave the Program and any departmental commitment to further financial support for the student will be suspended at the end of the semester during which the student is discharged from the program.

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Completing a Thesis

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Once a student has passed the Preliminary Exam and all of the other requirements mentioned in these pages, research toward the Ph.D. thesis becomes the focus of her/his work. There are two timing rules to of which to be aware: the advisory committee must meet at least once each year to evaluate the progress of the research; and, the thesis must be accepted formally within 7 years following admission to candidacy.

The thesis itself must represent a body of independent, publishable work that makes a significant contribution to science. Ph.D. degrees are not awarded for purely academic achievement, nor are they awarded in recognition of "time served".

It is also important that students understand the University's formalities for enrollment in courses and for tuition charges. For each of the first 3-4 years of enrollment, students can take up to 12 credits of course work during each semester of the academic year and up to 6 credits during the summer. These credits come from lecture courses, seminar courses, and research (initially as L501 for rotations and later as L800). Students will normally have completed 90 hours of coursework by the end of the 3rd or 4th year. Students who have completed 90 hours are thereafter eligible to enroll in G901 (advanced research; 6 credits/semester during the academic year) in place of L800, at greatly reduced tuition rates. The University permits a student to enroll in G901 for up to 3 years. If a student should exhaust this eligibility for G901, his/her tuition will return to the original higher level.

Once the student and his/her advisor agree that the thesis is nearly done, a student should begin to plan the thesis defense. At least six months in advance of defense, the advisory committee members and the University Graduate School must approve the thesis prospectus. The student should then select a date for the defense when all of the thesis committee members can be present. Prior to the defense, each committee member must receive a copy of the thesis that both the student and her/his advisor consider to be complete and polished – it should be properly printed and include all figures and references. Our rules state that this copy must be submitted to the committee no later than 6 weeks prior to the defense. In fact, it is often possible to shorten this period by agreement with the individual committee members, and 2 weeks is more common. Committee members are expected to read the thesis promptly and carefully. If they have major objections, they will express them at this stage and the defense may be deferred. It is more common that committee members will suggest revision of only portions of the thesis, and then they may reserve their comments for the thesis defense.

The thesis defense comprises two parts. It begins with a public presentation (i.e. a seminar), which must be announced in advance; the University Graduate School requires that a one-page summary and announcement of the dissertation be submitted 30 days prior to the scheduled defense, and the Department posts the seminar in "This Week in Biology". Following the presentation, the candidate meets with the thesis committee and is examined on the contents of the thesis. Theses may be accepted in their current form (rare), rejected (also rare), or accepted pending revision (common). Once a thesis has been revised to meet the committee's standards and the University's format requirements, the

committee and research advisor certify its acceptance to the Graduate School and recommend that the Ph.D. degree be awarded.

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Course Work -- General Requirements

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A student must maintain a minimum grade point average of 3.2 in order to remain in "good standing" and retain a merit-based fellowship or award. Furthermore, in order for a course to count toward degree requirements, it must be passed with a grade of B- or better.

At Indiana University grade points are assigned according to the following scale:

A = 4.0
A- = 3.7
B+ = 3.3
B = 3.0
B- = 2.7
C+ = 2.3

The graduate school requires that each student declare a "minor" in a field other than his/her major field of study. The most common minors are in MCDB, Genetics, and Microbiology. Meeting the requirements for a minor in MCDB, Genetics, and Plant Sciences is trivial as the requirements are fulfilled by the Core Courses. Therefore, when a student selects a Ph.D. degree program, she/he may simply select one of the other two areas to be the minor. Other possible minors are biochemistry, evolutionary biology, zoology, chemistry, organic chemistry, and perhaps other fields. The requirements for a minor in one of these areas are set by the minor field.

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The Teaching Requirement

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Ph.D. candidates are participants in a venerable tradition that involves both learning and passing on knowledge. They have a responsibility to help teach others and to refine their ability to do so effectively. In recognition of this responsibility, all Ph.D. programs in the department require that each student teach at least one semester during his/her graduate career. In addition, it is expected that graduate students participate in the research training of other students and personnel in their laboratories.

It is also a requirement of the College of Arts and Sciences that all Ph.D. students take formal instruction in college teaching methods. There are usually several options for meeting this requirement; for example, the requirement can currently be satisfied by attending the Howard Hughes Medical Initiative Teaching Workshop, held the week preceding the fall semester, or by taking the course L555, Seminar in Approaches to College Teaching.

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Student Rights and Responsibilities

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As members of the Indiana University academic community, graduate students have both rights and responsibilities. Minimally, students have the right to be free of racial and sexual harassment, whether by other students or by faculty. They should also expect to be treated fairly, impartially, and with dignity as colleagues in the academic enterprise. Some of these rights are protected by specific University

regulations described in the "Academic Handbook" and the "Code of Student Ethics". More informally, students should feel free to bring problems to the attention of their advisor, program directors, or the departmental chairperson.

Students also have responsibilities both as scholars and as teachers. As teachers they are subject to the same rules that apply to permanent faculty, rules that are designed to protect students against bias and harassment. Associate Instructors (A.I.s) should make themselves aware of these rules. Beyond the rules, A.I.s should be aware that they will be important role models to undergraduates and that their behavior toward their students should be beyond reproach.

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Plagiarism - definition, guidelines, and consequences

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Indiana University Academic Handbook, August 2005, p. 173:

"Honesty requires that any ideas or materials taken from another source for either written or oral use must be fully acknowledged. Offering the work of someone else as one's own is **plagiarism**. The language or ideas thus taken from another may range from isolated formulas, sentences, or paragraphs to entire articles copied from books, periodicals, speeches, or the writings of other students. The offering of materials assembled or collected by others in the form of projects or collections without acknowledgement also is considered **plagiarism**. Any student who fails to give credit for ideas or materials taken from another source is guilty of **plagiarism**."

Policy on Student Academic Misconduct

In assignments for class and in research articles you write in the future, your writing should:

- reflect your thinking about and interpreting what you read and hear
- express ideas in your own words
- give credit to the sources of the ideas

A good strategy is to make yourself to do the writing without the primary references in front of you. That will force you to use your own words.

Here are some reasons students have given for plagiarizing:

- "The author said it so precisely and clearly, and I knew I couldn't do a better job."
- "I knew it was wrong, but I didn't have time to write a really clear answer."
- "I just didn't feel I understood the answer well enough to use my own words."
- "I really did understand the material, but I thought it was better to use the language from the paper to show that I understood the right answer."

When cases of plagiarism are discovered, the disciplinary actions are severe:
-- After a 1st incident of plagiarism, we will assign a 0 on the assignment that contained a plagiarized portion or portions, and we will notify the Dean of the Graduate School of the incident and our action. Note that in the Preliminary Examination, a first incident of plagiarism may lead to the grade of 0 on the full Preliminary Exam, even if the plagiarism occurs in the first attempt at the written part of the exam. In such a case, the student would have failed the Preliminary Exam and would not be able to continue in the Ph.D. program.
-- After a 2nd incident of plagiarism, we will recommend to the Dean of the Graduate School that the student be expelled from our graduate program.

You are now entering a training program in which you will be asked often to evaluate the ideas, data, and conclusions from journal articles, reviews, the web, and other sources. In addition to avoiding outright plagiarism (as described above), you should also avoid mindlessly stitching together ideas from various sources even if they are appropriately referenced. You need to gather ideas and information

together, synthesize your own "big picture", and then describe your thoughts in your own words, citing your sources for the ideas and information you discuss.

One last point – even when you cite a source, it is not appropriate to directly copy or simply paraphrase the wording from that source. Providing a reference does not give you permission to use that reference's text directly, or to simply rearrange the words. You should instead express the idea(s) in your own words.

Examples of plagiarism

Original Source: Indiana University Academic Handbook, August 2005, p. 173:
"Honesty requires that any ideas or materials taken from another source for either written or oral use must be fully acknowledged.

Copying directly, without giving credit:
Honesty requires that any ideas or materials taken from another source for either written or oral use must be fully acknowledged. **not permitted**

Copying and modifying some words, without giving credit:
Honesty demands that any thoughts or methods taken from another place for either written or oral use must be fully cited. **not permitted**

Restructuring the content to disguise the original, without giving credit:
Whether taken for either written or oral use, you must fully acknowledge ideas or materials taken from another source in order to be honest. **not permitted**

Examples of correct usage of references

Copying directly, with quotes, and giving credit:
The Indiana University Academic Handbook (2005) states that "Honesty requires that any ideas or materials taken from another source for either written or oral use must be fully acknowledged." **permitted**

Putting the general idea into your own words and telling the reader where it came from:
Plagiarism, the copying of material from another person or text without giving credit to that person or text, is a form of dishonesty. This is explained more fully in the Indiana University Academic Handbook (2005). **permitted**

Plagiarism tutorial requirement

An excellent tutorial on plagiarism has been prepared by the Indiana University Instructional Systems Technology Department. You are required to complete this tutorial and to pass an online test, upon successful completion of which you will be able to print a confirmation certificate.

IU Plagiarism Tutorial site: http://www.indiana.edu/~istd/

Your plagiarism tutorial confirmation certificate must be brought to Gretchen by 4 PM on August 31st, 2009. Note that this certificate indicates that you understand plagiarism. If you do not understand it after going through the tutorial, please discuss this with your academic advisor.

The following info is reproduced verbatim from the web site:

- **The Indiana University Definition**
- **Overview**: when and how to give credit; recommendations; decision flowchart
- **Plagiarism Cases**: links to Web sites describing real plagiarism cases

- **Examples**: word-for-word and paraphrasing plagiarism -- 5 examples each
- **Practice with feedback**: identifying plagiarism -- 10 items
- **Test**: if you pass, you get a confirmation certificate
- **Resources**: Web sites, books, dictionary links, references"

In order to get the best understanding of plagiarism, you should go through each section carefully.

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Financial Assistance

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Students who are U.S. citizens may be eligible for support from the NIH Molecular Biology and Genetics Training Grant. Assignments to the training grant are made as vacancies arise and take into account a students accomplishments and interests. Assignments are generally made in response to nominations by the student's advisor. Please note that an NIH research-teaching payback provision is in effect on training grant support.

In addition, all students may be eligible for support by a number of Graduate Fellowships awarded under the auspices of the College of Arts and Sciences and the Indiana Molecular Biology Institute. Students are also eligible for Biology Associate Instructorships, which provide full stipend support and require at most 20 hours teaching per week. Finally, many advanced program students are supported as Research Assistants on the research grants of their thesis advisors.

The University sets standards of English competence for A.I.s. To make sure that all funding options are available to students whose native language is not English, it is critically important that foreign students meet those standards as early as possible during their graduate careers. Please consult the following webpage

http://www.indiana.edu/~college/graduate/InternationalAI/Becomeai2.shtml

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Research Labs

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A complete listing of MCDB training faculty can be found on our website:
http://www.bio.indiana.edu/graduate/mcdb/faculty.php.

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More Resources

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Check the web pages of the two graduate offices for information about requirements and funding

University Graduate School
http://www.indiana.edu/~grdschl/
College of Arts and Sciences Graduate Office
http://www.indiana.edu/~college/graduate/office/index.shtml

And when in doubt: Ask **Biology Graduate Advisor, Gretchen Clearwater**
gclearwa@indiana.edu