

HONORS PROGRAM HANDBOOK

(For Students Completing
A Senior Honors Thesis)

HONORS PROGRAM IN THE
NATURAL SCIENCES
UNIVERSITY OF HOUSTON-DOWNTOWN



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<small>(To be filled out by Honors Program Committee only)</small>	

**Items in blue text* are forms to be filled out by the student and signed by either the student or student and appropriate faculty according to the timeline guidelines on page 6.

TIPS FOR GETTING INVOLVED IN RESEARCH

Considerations Prior to Applying for the Honors Program in Natural Sciences

- Read about a professor's research using links from the Department of Natural Sciences (NS) and professor's website or research posters in the Department of Natural Sciences.
- E-mail professors whose research interests you and ask to meet with them.
- Be familiar with the professor's research prior to meeting with him or her.
- Have a resume/CV ready to give the professor.
- Talk to the Coordinator of the Honors Program, your faculty advisor, or other professors with whom you have had classes. They may be able to help you find a research position or their research may interest you.
- Take a chance. Some professors may not have room in their labs at the time you want to start working but if you express enough interest they may find room for you or give you an opportunity the following semester.
- Take statistics and a research methods course as early in your program as feasible. Work in both areas will enable you to do more sophisticated and independent things.
- Take the research course 3300 with a faculty member of the Natural Science department. This will allow you to determine if you enjoy research and give you an opportunity to work with a professor one on one. Your 3300 research professor may become your Honors Thesis Mentor, but they need not be.
- **Do not hesitate to ask for help.**

PROGRAM DESCRIPTION

In order to enhance the educational opportunities and experiences of academically talented students at the University of Houston-Downtown (UHD), the Department of Natural Sciences (NS) offers an Honors Program in the natural sciences. The program is designed to challenge and motivate students to accomplish more than the minimum required for a particular degree in science. Students that successfully complete this program will be designated as graduates of an Honors Program in NS on their diploma and university transcript.

The program is directed and coordinated by a committee which includes four NS representing the fields of biology, chemistry, geology and microbiology. One member is designated as the coordinator.

Students in the Honors Program complete a six-credit, independent research project that includes:

1. Preparing a research proposal.

Each student will work with a faculty member to develop the proposal and final thesis. Students will also meet at least once per semester with their mentor and an “at large” thesis advisor for guidance and planning.

2. Completing one course as an ‘honors course’ involving an additional course project.

The student must have the approval of the instructor for the course.

3. Carrying out an approved novel research project outlined in the research proposal.

The student is required to complete two semesters of Senior Honors Thesis (4399)

4. Writing a Senior Honors Thesis detailing the research project (20-page minimum).

Registration for these credits will not take place until a project proposal has been completed and submitted to the Honors Program Committee for approval.

5. Delivering an oral presentation of the completed research

Current Honors Program Coordinator:

Dr. Lisa Morano

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Department of Natural Sciences, N609

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Houston, TX 77002-1001

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PROGRAM ADMISSION AND REQUIREMENTS

Admission Requirements

- Application to the department's Honors Program Committee Chair to be reviewed by the Honors Program Committee.
- Completion of at least 60 semester credit hours of recognized university-level work.
- An overall GPA of at least 3.0 with a GPA of 3.25 or better in science courses.
- Completion of at least 16 semester credit hours in science, eight of which must have been taken at UHD.

Program Requirements

- Satisfy the requirements for one of the department's Bachelor of Science degree programs.
- Complete at least one honors designated course in addition to six hours of credit in BIOL or CHEM or GEOL or MBIO or PHYS 4399 Senior Honors Thesis. The senior thesis will be conducted under the supervision of an approved member of the UH-Downtown faculty or under a scientist at an affiliated research institution or laboratory and will be presented in both oral and written form to the Natural Sciences faculty. It is suggested that the student enroll in BIOL, CHEM, GEOL, MBIO or PHYS 3300 prior to 4399 and use that time to research the literature and develop their proposal.
- Maintain a minimum GPA of 3.25 in all science courses including the required honors courses
- Maintain a GPA of 3.0 or better in all non-science courses taken at UH-Downtown.

The departmental Honors Program Committee must approve the student's proposal, the honors designated course, and the final honors thesis. The grade for the final semester of 4399 will be decided by the Honors Program Committee based on the quality of the thesis and oral presentation. None of the honors components (3300, honors designated course, 4399) may be taken concurrently (see timeline).

TIMELINE FOR THE HONORS PROGRAM

	Fall junior year	Spring junior year	Summer	Fall senior year	Spring senior year
Honors course – pick one semester	Honors Course Contract due 2 weeks prior to semester 				
Research	Could be in 3300. 	Could be in 3300. Begin planning proposal. Pre-proposal signature form	May begin research after proposal approved.	Enroll in 4399 for two semesters. 	
Writing		Write-up senior honors proposal, at least 6 wks prior to enrolling in 4399. Attach Honors Program Proposal Form 		Write-up Senior Honors Thesis, at least 4 wks prior to end of semester and 2 wks prior to presentation. Deadline for giving proposal to committee members is one week before presentation. 	
Meetings and Logistics	Application to Honors Program. Along with mentor select one additional “at-large” faculty member with project-related expertise.		Proposal meeting with HPC, mentor & at-large faculty advisor. 	Meet with mentor and at-large faculty advisor at least once during the semester. 	Meet with mentor and at-large faculty advisor at least once during the semester. Presentation is at least 2 weeks prior to end of semester.

APPLICATION TO THE HONORS PROGRAM*

Name _____
Last First MI

Date _____

Student ID No. _____

Address _____
City State ZIP

Contact information _____
Phone email address (print clearly)

If Available: ACT Score _____ SAT Scores: English _____ Math _____

Prior Research Experience (if any):

Special awards, recognitions, national competitions:

College major: _____ Degree program: _____

For transfer students: College attended _____
 No. of hours completed there _____ GPA _____

UH-Downtown GPA _____ Total credit hours completed _____

Do you already have a research mentor you want to work with? If so, name _____

Are you a U.S. citizen or permanent resident? Yes/No: _____ If not:

Visa type and no. _____

PLEASE CIRCLE ETHNIC GROUP**

- | | | |
|--------------------|------------------------|---------------------------------------|
| White/Non-Hispanic | Hispanic | American Indian |
| Black/Non-Hispanic | Asian/Pacific Islander | Other _____
<small>specify</small> |

* This application does not replace the application for admission to the University. Complete this application only if you meet the requirements of the Honors Program.

** This information is voluntary. It will enable us to notify you of opportunities available to you as a student from a particular ethnic background and will help us keep accurate records.

We would like to know more about you. On an attached page type a brief account of your educational and/or research experiences to date. Include what you hope to gain from this research experience and how the Honors Program relates to your future goals. Turn the application into Honors Program Coordinator (pg.3).

HONORS PROGRAM SELECTED 'HONORS COURSE'

WHAT ARE HONORS COURSES?

The Honors Courses are any 3000 or 4000 Natural Sciences course offered by instructors who have an interest in arranging an Honors component for enrolled Honors students. The course should be selected because it offers content or techniques useful for the student in the completion of their Honors Program. In addition to the regular course work and credit, an Honors student may decide to receive an Honors designation by participating in the extra component. Students who wish to do so should notify the instructor and complete an Honors Contract Form **two weeks prior** to the semester the student will participate in the Honors course.

Any upper-level course offered by the Department of Natural Sciences may be converted to an Honors course. To receive Honors credit, the Honors student must agree in advance that the work will be sufficiently different from that assigned to the typical students that it represents Honors work both in terms of quality and represents approximately 25% more time above the normal class requirements. This may involve developing in greater depth some particular aspect of the course, having weekly conferences with the instructor over special material, or any other suitable arrangements agreed upon by the student and instructor.

ARRANGEMENTS

The instructor and student will meet at the beginning of the semester to decide what additional work will be required. Each will fill out and sign a contract form, stipulating the details of their agreement. The forms must be returned to the Honors Coordinator **two weeks prior to** the semester the work is to be completed. At the end of the semester, the Honors Coordinator will contact the instructor to verify that the contract agreement was fulfilled and that the Honors designation is to be awarded for this course.

The description of proposed work should be sufficiently explicit to provide a clear idea of the project, identifying the specific topic or problem to be dealt with and the way it is to be approached. References to particular sources or procedures, and inclusion of a bibliography (even if only partial), are recommended. A deadline for completion of the project must be indicated. The date can be altered if the student can provide sufficient data to support a change.

TYPE OF WORK

Examples of previous Honors Course contract projects may, include development of a new lab technique integrated into the classroom for all students to learn from, additional lab experiments or additional data analysis beyond those run by other students. Less integrative projects like a 20-page paper are discouraged. **Remember** that Honors contract students are required to do approximately **25% more work** than the other students enrolled in the class.

HONORS COURSE FACULTY OBLIGATIONS

An instructor who agrees to an Honors contract may or may not be the Honors Program faculty mentor. The Honors course faculty will meet with the student 2 or 3 times during the semester

on an individual basis, monitoring progress and offering guidance and assistance. Honors implies an active and direct interchange of ideas between teacher and student over the course of the semester as the student completes their additional course requirements. The faculty member is responsible for checking the progress of the project over the course of the semester.

STUDENT OBLIGATIONS

A student who undertakes to fulfill an Honors Course contract must carry out the assigned project within the limits established by the instructor. Students must meet with their professor a minimum of 2 to 3 times and seek their advice on a regular basis. Honors Course credit will not be awarded if the student fails to comply with the terms of the contract; however, this will not influence the normal letter grade that the student would earn for the course.

After completing the form and obtaining the required signatures, the student should return the form to the coordinator of the Honors Program. When a course is completed for Honors credit, the Records Office is notified and the honors designation is added to the student's permanent record.

HONORS COURSE CONTRACT*

This form is to be used for proposing a special project which, when duly completed, will entitle the student to receive Honors credit for the course in which the work is carried out.

Name of Student (Printed)

Student ID Number

Course No. Title Semester Instructor

TO BE COMPLETED BY THE STUDENT:

1. Give (tentative) title of project; describe the topic and how it will be approached. Clarify any terminology you use which may not be immediately clear to most readers.

2. Describe the final product to be produced by this project.

3. What bibliographical or research sources do you propose to consult in the course of carrying out the project? Be as specific as possible.

TO BE COMPLETED BY THE INSTRUCTOR:

1. What arrangement will you make with the student in order to provide consultation or supervision during the course of the project? Will you meet on a regular basis?

2. What is the date for submission of the finished product?

3. Are you placing further conditions on this project, or would you like to make additional comments?

Agreed jointly by:

Student Signature

Date

Instructor Signature

Date

The student named above is enrolled in the course shown and requests permission to carry out the Honors project described on this form. By signing below, the student and instructor agree to comply with the terms as specified.

If the contract is not eventually fulfilled but the student remains in the course and completes all requirements applicable to each student in the class, he/she will receive regular (non-Honors) credit for the course.

Honors Coordinator Date

****IMPORTANT: This form must be submitted to the Honors Coordinator two weeks prior to the first day of class for the semester in which contract credit is being requested. Applications received after this date will not be considered.***

GUIDELINES FOR MENTORING HONORS STUDENTS

The Honors Project

Honors projects must be individual, creative research projects that generate novel findings. Although it is not required, the Honors Program Committee encourages students to begin their work on their research prior to the start of the senior year, often in the summer of the junior year. It is also suggested that the student's sign up for a research course (3300) the semester prior to their senior year to give them time to develop a high-quality proposal. Options vary as to the creative originality required of the student in formulating his or her honors project. However, virtually all students in the program will need advice in constructing a project that fits realistically within his or her time and laboratory boundaries.

Completion of a Senior Honors Thesis is a requirement for graduation with Honors credit in the Natural Sciences at UHD. This requirement can be satisfied through laboratory and field research. Six credits of Senior Honors Thesis are to be completed (two semesters of 4399). The grade for the second semester 4399 is determined by vote of the Honors Program Committee after completion of the thesis and presentation.

The responsibilities of the research mentor include the following:

- **Assisting the student in the development of a proposal.** Students have the primary responsibility for identifying a suitable topic and arranging a series of meetings with you to discuss the feasibility of the topic and a plan of action. After agreeing to serve as a faculty advisor, it is necessary to complete [Honors Pre-Proposal Signature Form](#) indicating your willingness to serve as your student's thesis advisor. **If a faculty member fails to complete the form, the student will not be able to enroll in the program.** You are also asked to provide a preliminary title and a jotted outline of the proposed topic.

In subsequent meetings, the student will develop a 3-5 page proposal that describes the research project. The proposal must include a clear research question, one that relates to a body of knowledge that currently exists. The student's proposal should discuss the research question and include at least 5-6 scholarly sources that clearly relate to the question under investigation.

The [Senior Honors Thesis Proposal Form](#) must be submitted attached to the proposal to the Honors Program Committee six weeks prior to beginning the project. Your signature on this form indicates that you believe the proposal to be well written and the proposed project to be scientifically strong. **If this form is not completed on time, the student will not be able to enroll in the program.**

- **Mentoring of the student during the thesis or project.** Faculty and students are encouraged to meet on a regular basis. A schedule of semi-monthly meetings is appropriate to discuss the progress of the student's work. Students and faculty should also plan to meet at least once per semester with the 'at large' faculty member to get suggestions and or help troubleshoot any problems that may arise.

- **The thesis.** Each student is responsible for completing a thesis (20 pages at a minimum) that is written in an appropriate academic format (see thesis format below) In addition, the paper should be written in the format required by a journal appropriate for publication of the project and it should follow the “Guidelines for Authors” for the chosen journal. The thesis should be given to you (the research mentor) at least 4 wks prior to end of semester and two weeks prior to the oral presentation. Deadline for giving the final thesis to the Honors Program Committee is **one week before** the oral presentation. This period will allow the members of the Honors Program Committee to review the paper before the oral presentation. Be sure to review proper thesis format with your student.

THESIS FORMAT

1. Use double space for all except literature cited section.
 2. Margins: Top margin = 1 inch, bottom margin = 1 inch, left margin 1.25 inches, right margin 1.25 inches.
 3. Paper must be a minimum of 20 pages in length, including the literature cited/bibliography section.
 4. Divide the paper into the following sections: Introduction, Methods, Results and Discussion.
 5. Page Numbering: Number each page, bottom and center, beginning with 1,2,3, etc. Numbering will include bibliography.
 6. Pictures/Graphs: These do not count in the 20 pages of text. See journal guidelines for style and placement, typically they come after the text.
 7. Websites are not accepted literature citations, always refer to the primary literature.
 8. Visit a librarian for help in understanding the types of search engines that are available to UHD students.
- **The oral presentation.** Each student will deliver an oral presentation of the work completed. As research mentor and thesis advisor, your presence at the presentation is required. Some students will need coaching on how to give an effective presentation of their work. For example, several practice presentations of the student’s work may help the student be better prepared to present their scholarly work. Members of the Honors Program Committee who read the thesis before the presentation will be prepared to ask questions of your student.
 - **Final grade.** The Honors Program Committee will meet after the oral presentation and submit all grades for the thesis work.

ADDITIONAL GUIDELINES FOR THE FACULTY RESEARCH MENTOR/ THESIS ADVISOR

In an attempt to bring some uniformity to the guidance and evaluation of honors theses in the undergraduate research, the Honors Program Committee has prepared the following guidelines for faculty thesis advisors. We hope that you realize that uniformity of treatment in the Honors Program is a desirable goal in itself, and that you will follow these guidelines. The Honors Program Committee welcomes your opinions on these guidelines, and will periodically review them in accordance with the wishes of members of the faculty.

1. Do not accept an honors student unless you can devote the time necessary to supervise his or her research, including a critical review of the written thesis.
2. Make sure that the thesis project can be executed with the time and resource constraints. This is best accomplished by establishing with the student a detailed schedule that allows ample time for mistakes and disasters. The schedule should specifically allow time for writing and revising the thesis before it goes to the Honors Program Committee.
3. Do not attempt to “save at all costs” an honors thesis if, for whatever reason, an honors-quality thesis cannot be produced. Do not hesitate to inform the student of this and to remove the project from the Honors Program.
4. Make sure your honors student’s thesis is in a presentable form before it goes to the Honors Program Committee. This means that the quality of writing in the paper is such that you would not hesitate to submit it to a journal if it were your own manuscript.

HONORS PROGRAM RESEARCH PROPOSAL

After meeting with your research mentor, you should develop 5-6 questions that relate to the thesis topic you are considering. Discuss these questions with your mentor and use them to develop your proposal. You may wish to expand on one or two of the questions to come up with your thesis. When you have decided on a topic and a preliminary title, have your research mentor fill out the **Honors Pre-Proposal Signature Form** and return it to the Honors Program coordinator. The purpose of this form is to make sure both you and your faculty research mentor are aware of the time and energy required for the proposal, research, thesis and oral presentation.

Important Date: Submit your proposal to the Honors Program Committee with the **Proposal Application Form** stapled to the top. Your proposal is due **six-weeks** prior to your first semester of senior honors thesis (4399). Your proposal will include the following components:

- **Course Number:** Indicate on your proposal form the course number under which you will be conducting your research for Senior Honors Thesis (e.g., BIOL 4399, CHEM 4399, etc.).
- **Title:** Develop a short descriptive title for your thesis. Your title should be self-explanatory and give the reader a clear idea of your topic.
- **Introduction:** Your introduction will identify the type of project you have chosen and include the projected focus of your paper in the introduction.
- **Research question and approach:** Your proposal must include a hypothesis to be tested or a research question that you will examine. Your hypothesis or research question must be tied to the body of knowledge that currently exists. What methods will you use in your research? How will data be collected and analyzed? What materials will be used? What timeline will you follow in completing your project?
- **Annotated bibliography:** On a separate piece of paper, include a preliminary annotated bibliography of at least five or six sources. This is the “body of knowledge” mentioned above. You should have both early and current literature among your sources. Select books or a combination of books and journal articles that address your topic. Follow an approved academic format in typing your bibliography.
- **Proposal Application Form:** Staple this form to the top of your proposal. You must indicate on the form which semester you wish to begin your project. You will also indicate which semester you intend to complete your research and do the work for your paper and oral presentation. Your advisor must attend your presentation.
- **Approval:** The Honors Program Committee will review all proposals after the deadline for submission each semester. Students whose proposals have been approved will receive a letter from the Honors Program Committee. The Honors Program Committee will then register you for the credits.

HONORS PRE-PROPOSAL SIGNATURE FORM

I have read the Guidelines of what should be included in my research proposal and in my final thesis. I have read over the Honors Program Timeline and understand that if I miss a deadline this will result in putting me one semester behind in my Honors Program or may result in me not graduating with Honors as planned. Proposals are due 6 weeks prior to starting your first Honors Thesis (4399).

Student (The following is to be filled out by the student applicant)

Student Name _____

The preliminary topic for the thesis is _____

The central question is: _____

My research mentor is: _____

Proposed "at large" faculty member is: _____

(This faculty member should be chosen due to expertise in this research field.)

Student Signature: _____

Printed Name: _____

Date: _____

Faculty (The following is to be filled out by the faculty mentor)

I have read the Guidelines for Mentoring Honors Students, and I agree to serve as faculty advisor for _____

Faculty Mentor (Print Name): _____

Signature: _____

Date: _____

HONORS PROGRAM THESIS PROPOSAL FORM

Student Name: _____

Student ID Number: _____

Address: _____

Telephone Number: _____

E-mail: _____

Course Number: _____

Semester beginning the work: _____

Semester presenting: _____

Title of Thesis: _____

Hypothesis/Research Question:

Name of Faculty Advisor: _____

Faculty Advisor's Endorsement: Please mark the boxes with an "x."

- | | | |
|------------------------------|-----------------------------|---|
| <input type="checkbox"/> Yes | <input type="checkbox"/> No | The bibliography includes respected sources in the field . |
| <input type="checkbox"/> Yes | <input type="checkbox"/> No | The project involves independent work and thought on the part of the student. |
| <input type="checkbox"/> Yes | <input type="checkbox"/> No | The project contributes and is of value to others in the field. |
| <input type="checkbox"/> Yes | <input type="checkbox"/> No | Six credits of work are reflected in the project. |
| <input type="checkbox"/> Yes | <input type="checkbox"/> No | I have read the written proposal and find it satisfactory. |

Faculty Mentor's Signature: _____

Date: _____

REVIEW SHEET FOR HONORS THESIS

(To be filled out by Honors Committee Members after reading the thesis
and attending the oral presentation.)

Honors Student: _____

Thesis Title:

Thesis Advisor:

Evaluation:

	Experimental Format	Use of Controls	Documentation of Data	Interpretation of Data	Presentation of Results	Overall Quality of Thesis
Excellent	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Very Good	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Good	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fair	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Poor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

To help the Honors committee rank this thesis and recommend degrees of honors please give us your opinions on the following (**attach a separate sheet if you prefer**):

1. Did the student perform an adequate amount of experimentation and data analysis for you to judge his or her results and conclusions?

2. Based on the thesis, do you feel that this is a publishable manuscript? Yes No

If No, do you feel that the data collected could a significant part of a future manuscript? (For example, as part of the data presented in a **Results** section, as part of the data presented in a table or group of figures, or as the data describing a group of controls)?

3. If there are negative results, are these results compelling? Could these results be regarded as legitimate control results? Were enough controls performed to give you confidence that the student got a truly negative result?

4. Do you have any recommended changes? Please provide details in the space provided below:

Reviewer's Signature: _____

Date: _____

*****CONFIDENTIAL*****