**DOCTOR OF PHILOSOPHY IN MOLECULAR BIOLOGY**

The Doctor of Philosophy degree in Molecular Biology is offered through a cooperative program of the Federation of North Texas Area Universities that includes Texas Woman’s University and the University of North Texas. Within this degree option, courses are available in molecular biology and neurobiology.

The Federation doctoral program provides opportunities for formal course work, seminars, independent study, participation in regional and national conferences, and dissertation research. The program also includes Federation-sponsored seminars featuring outstanding nationally and internationally recognized educators.

Graduate students enrolled at either UNT or TWU take courses at both universities, thus benefiting from the combined faculties of each school. Students graduating from a Federation program will be granted the Ph.D. from the university through which they entered the program.

**Total Semester Credit Hours Required**

A minimum of 90 semester credit hours including those at the master’s level and 6 semester credit hours for dissertation.

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<tr>
<th>Code</th>
<th>Title</th>
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<tbody>
<tr>
<td>BIOL 6513</td>
<td>Molecular Biology</td>
<td>3</td>
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<tr>
<td>BIOL 6334</td>
<td>Advanced Cell Biology</td>
<td>4</td>
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<tr>
<td>BIOL 6734</td>
<td>Advanced Genetics</td>
<td>4</td>
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<tr>
<td>CHEM 5613</td>
<td>Advanced Biochemistry I</td>
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<td>CHEM 5623</td>
<td>Advanced Biochemistry II</td>
<td>3</td>
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<tr>
<td>BIOL 5611</td>
<td>Readings in Biology (taken 3 times)</td>
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<tr>
<td>BIOL 5681</td>
<td>Seminar (taken 3 times)</td>
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<tr>
<td>Research Tool 1</td>
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<tr>
<td>Research Tool 2</td>
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**To complete the program:**

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<tr>
<td>BIOL 6983</td>
<td>Dissertation (may take twice)</td>
<td>6-18</td>
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<tr>
<td>BIOL 6993</td>
<td>Dissertation (may take 4 times)</td>
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**Research Tools**

Proficiency in two Research Tools is required in categories such as Bioinformatics, Grant Writing, Molecular Techniques, Statistics, Computer Science, or Foreign Languages.

**Research Tool 1:** "Techniques" courses from a selection of skill courses such as Electron Microscopy, Plasmid Techniques, and Specific Molecular Techniques.

BACT 6534 and BACT 6544 together may be counted as one of the two required Research Tools.

**Research Tool 2:** Students may choose from any of the categories listed above.

**Residence Requirement**

A Ph.D. candidate must spend one academic year in residence on the Denton campus.

**Dissertation**

6 to 18 dissertation hours

**Preliminary Examination**

The preliminary examination consists of two parts: a written research proposal; and an oral examination covering the contents of the proposal as well as the fields of cell and molecular biology. The student's advisory/research committee administers the examination.

**Final Examination**

An open seminar in which the student discusses research results and an oral examination by the dissertation committee are required.

**Faculty**

**Professors**

HYNDS, DIANNA L., Professor of Biology. B.S., Hillsdale College; Ph.D., Ohio State University, Columbus.

MAIER, CAMELIA G., Professor of Biology. B.S., University of Bucharest; M.S., University of North Texas; Ph.D., University of North Texas.

MILLS, NATHANIEL C., Professor of Biology. B.S., Western Kentucky University; Ph.D., Vanderbilt University.

SPENCER, JULIET, Professor of Biology; Chair of the Department of Biology.

**Associate Professors**

BERGEL, MICHAEL, Associate Professor of Biology. B.Sc., The Hebrew University of Jerusalem; M.Sc., The Hebrew University of Jerusalem; Ph.D., The Hebrew University of Jerusalem.

CONRAD-WEBB, HEATHER M., Associate Professor of Biology. B.S., Baylor University; Ph.D., Ohio State University, Columbus.

GUMIENNY, TINA, Associate Professor of Biology. B.S., Texas A&M University; Ph.D., State University of New York-Stony Brook.

HANSON, LAURA K., Associate Professor of Biology. B.S., University of Washington; Ph.D., Cornell University.

WESTMORELAND, SANDRA, Associate Professor of Biology. B.S., University of Houston; M.S., University of Texas at Arlington; Ph.D., University of Texas at Arlington.

**Assistant Professors**

AYERITT, DAYNA L., Assistant Professor of Biology. B.A., University of Texas at Austin; M.S., Georgia State University; Ph.D., Georgia State University.

BROWER, CHRISTOPHER, Assistant Professor of Biology. B.S., Northeastern Oklahoma State University; M.S., University of Oklahoma Health Sciences Center; Ph.D., University of Oklahoma Health Sciences Center.

PISLARIU, CATALINA, Assistant Professor of Biology. B.S., University of Bucharest, Romania; M.S., Ghent University, Belgium; Ph.D., University of North Texas.
Doctor of Philosophy in Molecular Biology

Lecturer
BIGGERS, AMANDA, Lecturer II of Biology. B.S., Texas Tech University; M.Ed., Texas A&M University System: College Station; Ph.D., Iowa State University.

Associate Clinical Professor
AHMED, SHAZIA A., Associate Clinical Professor of Biology. B.S., University of Karachi; M.S., University of Karachi; Ph.D., Texas Woman's University.

Assistant Clinical Professor
HAMMETT, AMY JO, Assistant Clinical Professor of Biology. B.S., Texas Woman's University; Ph.D., Texas A&M University.