Molecular Biology and Business Administration (B.S.)

The Biology Program at UT Dallas emphasizes the unifying molecular and cellular nature of organisms. At the center of the Biology undergraduate curriculum are the biochemical, genetic, and cell biology concepts and tools used to study the genes of prokaryotes and eukaryotes, to study the proteins and ribonucleic acids (RNA) encoded by these genes, and to study how the expression of these genes is regulated during the development and lifetimes of organisms. Molecular Biology represents a fusion of the four disciplines of biochemistry, biophysics, genetics, and cell biology. Modern biology requires a background in other disciplines such as chemistry, mathematics, physics, and computer sciences. Principles from these disciplines have to be merged to understand and apply new biotechnology and genetic engineering techniques. It is desirable for entering students to have a broad interest and background in the sciences.

Both B.S. and B.A. degrees are offered in Biology at UT Dallas; a B.S. degree is offered in Molecular Biology. The B.S. degrees are intended as preparation for scientific careers in biology or careers in the health professions. The B.A. degree is intended as liberal arts biology major with less emphasis on calculus and more free hours for course work in other disciplines. Each degree in Biology offers a streamlined double major with Business Administration or Crime and Justice Studies. Five-year Fast Track B.S./M.S. Biology and Molecular Biology degree programs are available. Minors are offered in Biology, Biomolecular Structure, Microbiology, Molecular and Cell Biology, and Neurobiology.

Faculty

**Professors:** Lee A. Bulla, Santosh D'Mello, Rockford K. Draper, Juan González, Donald M. Gray, Stephen D. Levene, Lawrence J. Reitzer, Stephen Spiro, Li Zhang, Michael Q. Zhang

**Associate Professors:** Gail A.M. Breen, John G. Burr, Jeff L. DeJong, Ernest M. Hannig, Dennis L. Miller

**Assistant Professors:** Tianbing Xia, Zhenyu Xuan, Hyuntae Yoo

**Professor Emeritus:** Hans Bremer, Claud S. Rupert

**Senior Lecturers:** Irina Borovkov, Mehmet Candás, Vincent P. Cirillo, Wen-ju Lin, Robert C. Marsh, David Murchison, Elizabeth Pickett, Ruben D. Ramirez, Scott A. Rippel, Ilya Sapozhnikov, Wen-Ho Yu

Transfer Students

Students transferring into Biology or Molecular Biology at the junior level in either the B.S. or the B.A. programs are expected to have completed courses equivalent to:

- Introductory Biology with lab, **Biol 2311**, 2312, and 2281
- General Chemistry with lab, **Chem 1311**, 1111, 1312, and 1112
- Organic Chemistry with lab, **Chem 2323**, 2123, 2325, and 2125
- Calculus, **Math 2417** and 2419 (B.S. or B.A. degree); or Applied Calculus, **Math 1325**, (B.A. degree only)
Physics with lab, calculus-based PHYS 2325, 2125, 2326 and 2126 (B.S. or B.A. degree); or algebra-based PHYS 1301, 1101, 1302, 1102 (B.A. degree only).

Junior-level transfer students deficient in these lower-division requirements may satisfy the requirements with courses taken at UT Dallas; however, students deficient in the biology and chemistry requirements may be delayed in entering upper-division biology courses.

Bachelor of Science in Molecular Biology and Business Administration (Double Major)

Degree Requirements (149 hours)

I. Core Curriculum Requirements: 42 hours

Communication (6 hours)
3 hours Communication (RHET 1302)
3 hours Communication Elective (BCOM 3311)

Social and Behavioral Sciences (15 hours)
6 hours Government (GOVT 2301 and GOVT 2302)
6 hours American History
3 hours Social and Behavior Sciences Elective (ECON 2301)

Humanities and Fine Arts (6 hours)
3 hours Fine Arts (ARTS 1301)
3 hours Humanities (HUMA 1301)

Mathematics and Quantitative Reasoning (6 hours)
6 hours Calculus (MATH 2417 and MATH 2419)

Science (9 hours)
9 hours Chemistry (CHEM 1311/1111, CHEM 1312/1112 and CHEM 2123)

II. Major Requirements: 95 hours

Biology Major Preparatory Courses (17 hours beyond Core Curriculum)
CHEM 1111 General Chemistry Laboratory I
CHEM 1112 General Chemistry Laboratory II
CHEM 1311 General Chemistry I
CHEM 1312 General Chemistry II
CHEM 2123<sup>5</sup> Introductory Organic Chemistry Laboratory I
CHEM 2125<sup>5</sup> Introductory Organic Chemistry Laboratory II
CHEM 2323<sup>5</sup> Introductory Organic Chemistry I
CHEM 2325<sup>5</sup> Introductory Organic Chemistry II
MATH 2417<sup>4</sup> Calculus I
MATH 2419<sup>4</sup> Calculus II
PHYS 2325 and PHYS 2125 Mechanics with Laboratory
PHYS 2326 and PHYS 2126 Electromagnetism and Waves with Laboratory

Biology Major Core Courses (36 hours)

BIOL 2111<sup>5</sup> Introduction to Modern Biology Workshop I
BIOL 2112<sup>5</sup> Introduction to Modern Biology Workshop II
BIOL 2281<sup>5</sup> Introductory Biology Laboratory
BIOL 2311<sup>5</sup> Introduction to Modern Biology I
BIOL 2312<sup>5</sup> Introduction to Modern Biology II
BIOL 3101 Classical and Molecular Genetics Workshop
BIOL 3102 Eukaryotic Molecular and Cell Biology Workshop
BIOL 3161 Biochemistry Workshop I
BIOL 3162 Biochemistry Workshop II
BIOL 3301 Classical and Molecular Genetics
BIOL 3302 Eukaryotic Molecular and Cell Biology
BIOL 3361 Biochemistry I
BIOL 3362 Biochemistry II
or BIOL 3335 Microbial Physiology
BIOL 3380 Biochemistry Laboratory
BIOL 4461 Biophysical Chemistry

Business Administration Major Preparatory Courses (15 hours beyond Core Curriculum)

ACCT 2301<sup>5</sup> Introductory Financial Accounting
ACCT 2302<sup>5</sup> Introductory Management Accounting
BLAW 2301<sup>5</sup> Business and Public Law
ECON 2301<sup>5</sup> Principles of Macroeconomics<sup>3</sup>
ECON 2302<sup>5</sup> Principles of Microeconomics
定量商业分析
或 数学 2333

商业管理核心课程 (27 学分)
- BCOM 3311 业务沟通 3
- BCOM 4350 高级业务沟通 3
- FIN 3320 业务金融
- MIS 3300 管理信息系统介绍
- OPRE 3310 运营管理
- OBHR 3310 组织行为
- MKT 3300 市场营销原理
- BPS 4305 战略管理 3
- IMS 3310 国际业务
- STAT 3360 管理与经济学概率与统计
- 或 STAT 3332 生命科学统计
- 或 OPRE 3360 决策管理在不确定性

III. 选修要求：12 学分

高级选修
所有学生需选至少6学分的高级选修课，选修课必须是专业领域的，或选修课程需有先修课程。这些可选修 CHEM 2323 和 2325

指导选修 (12 学分)

业务 (9 学分)：从高级 JSOM 课程中选修。有资格的学生可从 JSOM 研究生课程中选修。

生物 (3 学分)：从 BIOL 4380, BIOL 3V96 (3 学分), 6 BIOL 4391, 6 或 BIOL 4399 (3 学分) 选修。

所有学生需选修至少 51 学分的高级课程以毕业。

1. 本科学位需选修 150 学分。
2. 专业课程的要求可由其他认可的高等教育机构规定的同等课程来满足。括号中的课程是推荐的最有效方式来同时满足专业核心课程和专业要求。
3. 必修的专业课程同时也满足专业要求。学分计入专业核心
4. 六学分的微积分计算在数学核心，两学分的微积分计算在专业
Preparatory Courses.
5. Indicates a prerequisite class to be completed before enrolling for upper-division classes.
6. Requires permission of the Biology Undergraduate Advisor to ensure training in recombinant DNA analysis.