School of Natural Sciences and Mathematics

Molecular Biology and Healthcare Management (Double Major) (BS)

Degree Requirements (154 semester credit hours)\(^1\) \(^2\)

NSM Faculty

**Professors:** Lee A. Bulla, Rockford K. Draper, Juan E. González, Lawrence J. Reitzer, Stephen Spiro, Li Zhang, Michael Qiwei Zhang  
**Professor Emeritus:** Hans Bremer, Donald M. Gray  
**Clinical Professor:** David Murchison  
**Associate Professors:** Gail A. M. Breen, John G. Burr, Jeff L. Dejong, Ernest M. Hannig, Tae Hoon Kim, Dennis L. Miller, Zhenyu Xuan  
**Assistant Professors:** Zachary Campbell, Nikki Delk, Heng Du, Jung-whan (Jay) Kim, Faruck Morcos, Kelli Palmer, Duane D. Winkler, Hyuntae Yoo  
**Research Assistant Professors:** Monique Duncan, Lan Guo, Li Liu  
**Senior Lecturers:** Irina Borovkov, Mehmet Candas, Brenna Hill, Wen-Ju Lin, Robert C. Marsh, Jing Pan, Elizabeth Pickett, Ruben D. Ramirez, Scott A. Rippel, Ilya Sapožnikov, Uma Srikanth, Michelle Wilson, Wen-Ho Yu

JSOM Faculty

**Professor Emeritus:** Dale Osborne  
**Associate Professors:** Nina Baranchuk, Norris Bruce, Jianqing Chen, Zhonglan Dai, Rebecca Files, Xianjun Geng, J. Richard Harrison, Ernan E. Haruvy, Surya N. Janakiraman, Robert L. Kieschnick Jr., Seung-Hyun Lee, Ningzhong Li, Lívia Markóczy, Amit Mehra, Toyah Miller, Alp Muharremoglu, Ramachandran (Ram) Natarajan, Valery Polkovnichenko, Ashutosh Prasad, Orlando C. Richard, Young U. Ryu, Gil Sadka, Jane Salk, Harpreet Singh, David J. Springate, Upender Subramanian, Kelsey D. Wei, Han (Victor) Xia, Jun Xia, Ying Xie, Yexiao Xu, Alejandro Zentner, Jiaying Zhang, Yuan Zhang
I. Core Curriculum Requirements: 42 semester credit hours

Communication: 6 semester credit hours

- **COMM 1311** Survey of Oral and Technology-based Communication
- **RHET 1302** Rhetoric

Mathematics: 3 semester credit hours

- **MATH 2417** Calculus I

Life and Physical Sciences: 6 semester credit hours

- **CHEM 1311** General Chemistry I
- **CHEM 1312** General Chemistry II

Language, Philosophy and Culture: 3 semester credit hours

- Select any 3 semester credit hours from Language, Philosophy and Culture core courses (see advisor)

Creative Arts: 3 semester credit hours

- Select any 3 semester credit hours from Creative Arts core courses (see advisor)

American History: 6 semester credit hours
Select any 6 semester credit hours from American History core courses (see advisor)

**Government / Political Science: 6 semester credit hours**

- **GOVT 2305** American National Government
- **GOVT 2306** State and Local Government

**Social and Behavioral Sciences: 3 semester credit hours**

- **ECON 2301** Principles of Macroeconomics

**Component Area Option: 6 semester credit hours**

- **MATH 2419** Calculus II
- **ECON 2302** Principles of Microeconomics

**II. Major Requirements: 97 semester credit hours**

**Biology Major Preparatory Courses: 20 semester credit hours beyond Core Curriculum**

- **CHEM 1111** General Chemistry Laboratory I
- **CHEM 1112** General Chemistry Laboratory II
- **CHEM 1311** General Chemistry
- **CHEM 1312** General Chemistry II
- **CHEM 2123** Introductory Organic Chemistry Laboratory I
- **CHEM 2125** Introductory Organic Chemistry Laboratory II
- **CHEM 2323** Introductory Organic Chemistry I
- **CHEM 2325** Introductory Organic Chemistry II
- **MATH 2417** Calculus I
- **MATH 2419** Calculus II
- **PHYS 2325** Mechanics
- **PHYS 2125** Physics Laboratory I
- **PHYS 2326** Electromagnetism and Waves
- **PHYS 2126** Physics Laboratory II

**Biology Core Courses: 33 semester credit hours**

- **BIOL 2111** Introduction to Modern Biology Workshop I
- **BIOL 2112** Introduction to Modern Biology Workshop II
- **BIOL 2281** Introductory Biology Laboratory
BIOL 2311  Introduction to Modern Biology I
BIOL 2312  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 Major Preparatory Courses: 15 semester credit hours beyond Core Curriculum

ACCT 2301  Introductory Financial Accounting
ACCT 2302  Introductory Management Accounting
BLAW 2301  Business and Public Law
ECON 2301  Principles of Macroeconomics
ECON 2302  Principles of Microeconomics
OPRE 3333  Quantitative Business Analysis
   or  MATH 2333  Matrices, Vectors, and Their Application
OPRE 3360  Managerial Methods in Decision Making Under Uncertainty
   or  STAT 2332  Introductory Statistics for Life Sciences
   or  STAT 3360  Probability and Statistics for Management and Economics

Business Core Courses: 29 semester credit hours

BA 1100  Business Basics and  HMGТ 3100  Professional Development
   or  HMGТ 3200  Introduction to Business Professional Development and Business Communication
BCOM 3310  Business Communication
BCOM 4350  Advanced Business Communication
BPS 4305  Strategic Management
FIN 3320 Business Finance
IMS 3310 International Business
ITSS 3300 Information Technology for Business
OPRE 3310 Operations Management
OBHR 3310 Organizational Behavior
MKT 3300 Principles of Marketing

III. Elective Requirements: 15 semester credit hours
A zero semester credit hour practicum experience is required.

HMGT 4090 Healthcare Management Internship

The following courses fulfill the remaining Guided Elective semester credit hours:

Healthcare Management Core Courses: 12 semester credit hours

HMGT 3301 Introduction to Healthcare Management
HMGT 3311 Healthcare Accounting
HMGT 4321 Introduction to Healthcare Information Systems
HMGT 3310 Healthcare Regulatory Environment

Biology (3 semester credit hours):

BIOL 4380 Cell and Molecular Biology Laboratory
or BIOL 3V96 Undergraduate Research in Molecular and Cell Biology
or BIOL 4391 Senior Research in Molecular and Cell Biology
or BIOL 4399 Senior Honors Research in Molecular and Cell Biology

All students must complete at least 51 semester credit hours of upper-division courses to graduate.

1. Incoming freshmen must enroll and complete requirements of UNIV 1010 and the corresponding school-related freshman seminar course. Students, including transfer students, who complete their core curriculum at UT Dallas must take UNIV 2020.
2. Degree is 155 semester credit hours if students are required to take NATS 1101.
3. Curriculum Requirements can be fulfilled by other approved courses from institutions of higher education. The courses listed are recommended as the most efficient way to satisfy both Core Curriculum and Major Requirements at UT Dallas.
4. A required Major course that also fulfills a Core Curriculum requirement. Semester credit hours are counted in Core Curriculum.
5. Six semester credit hours of Calculus are counted under Mathematics Core and Component Area Option Core, and 2 semester credit hours of Calculus are counted as Biology Major Preparatory Courses.
6. Indicates a prerequisite class to be completed before enrolling for upper-division classes.
7. Students may substitute MATH 2418 or CS 2305.
8. JSOM freshmen are required to take BA 1100 and HMGT 3100. Transfer students and students new to JSOM are required to take HMGT 3200.

9. Requires permission of the Biology Undergraduate Advisor to ensure training in recombinant DNA analysis.

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