School of Natural Sciences and Mathematics

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

Bachelor of Science in Molecular Biology and Healthcare Management (Double Major)

*Degree Requirements (153 semester credit hours)*

NSM Faculty

**Professors:** Lee A. Bulla, Rockford K. Draper, Juan E. González, Lawrence J. Reitzer, Stephen Spiro, Li Zhang, Michael Qiwei Zhang

**Professors Emeritus:** Hans Bremer, Donald M. Gray, Claud S. Rupert

**Associate Professors:** Gail A. M. Breen, John G. Burr, Jeff L. Delong, Ernest M. Hannig, Tae Hoon Kim, Dennis L. Miller

**Assistant Professors:** Nikki Delk, Heng Du, Jung-whan (Jay) Kim, Kelli Palmer, Duane D. Winkler, Zhenyu Xuan, Hyuntae Yoo

**Research Assistant Professors:** Monique Duncan, Lan Guo

**Senior Lecturers:** Irina Borovkov, Mehmet Candas, Vincent P. Cirillo, Brenna Hill, Wen-Ju Lin, Robert C. Marsh, David Murchison, Jing Pan, Elizabeth Pickett, Ruben D. Ramirez, Scott A. Rippel, Elizabeth L. Rugg, Ilya Saposnikov, Uma Srikanth, Michelle Wilson, Wen-Ho Yu

**Affiliated Faculty:** Stephen D. Levene, Jonathan E. Ploski

JSOM Faculty


**Professor Emeritus:** Dale Osborne


Clinical Associate Professors: Sonia Leach, Carolyn Reichert, Kelly Slaughter, Mark Thouin, John McClain Watson

Assistant Professors: Mehmet Ayvaci, Emily Choi, Rebecca Files, Bernhard Ganglmair, Dorothée Honhon, Elisabeth Honka, Kyle Hyndman, Atanu Lahiri, Sheen Levine, Bin Li, Jun Li, Meng Li, Ningzhong Li, Virginie Lopez-Kidwell, Arzu Ozoguz, Anyan Qi, Alessio Saretto, Harpreet Singh, Gonca P. Soysal, Upender Subramanian, Shaojie Tang, Christian Von-Drathen, Malcolm Wardlaw, Han (Victor) Xia, Shengqi Ye, Nir Yehuda, Jieying Zhang, Xiaofei Zhao

Clinical Assistant Professors: Hans-Joachim Adler, Shawn Alborz, Athena Alimirzaei, Moran Bluestein, John Gamino, Ayfer Gurun, Vance Lewis, Liping Ma, Dawn Owens, Anastasia V. Shcherbakova

Senior Lecturers: Arthur M. Agulnek, Semiramis Amirpour, Frank Anderson, Anindita Bardhan, Ronald Blair, Daniel Bochsler, Tiffany A. Bortz, Richard Bowen, Judd Bradbury, Monica E. Brussolo, George DeCourcy, Eugene (Gene) Deluke, Alexander Edsel, Amal El-Ashmawi, Carol Flannery, Mary Beth Goodrich, Maria Hasenhuttl, Julie Haworth, Thomas (Tom) Henderson, Jennifer G. Johnson, Lynn Carl Jones, Jackie Kimzey, Kristen Lawson, Chris Linsteadt, Diane S. McNulty, Madison Pedigo, Jared Pickens, Matt Polze, James Richards, Mark Salamasick, Avanti P. Sethi, Jeanne Sluder, Steven Solcher, Luell (Lou) Thompson, Amy L. Troutman, Robert Wright, Kathy Zolton

Visiting Faculty: Kyle Edgington

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\(^4\)

**CHEM 1312** General Chemistry II\(^4\)

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\(^4, 6\)

Component Area Option: 6 semester credit hours

**MATH 2419** Calculus II\(^4, 5\)

**ECON 2302** Principles of Microeconomics\(^4, 6\)

II. Major Requirements: 96 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 I\(^4\)

**CHEM 1312** General Chemistry II\(^4\)

**CHEM 2123** Introductory Organic Chemistry Laboratory I\(^6\)

**CHEM 2125** Introductory Organic Chemistry Laboratory II\(^6\)
CHEM 2323 Introductory Organic Chemistry
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
NATS 1101 Natural Sciences and Mathematics Freshman Seminar or BA 1100 Business Basics
UNIV 1010 Freshman Seminar

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: 16 semester credit hours beyond Core Curriculum

ACCT 2301 Introductory Financial Accounting
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<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>ACCT 2302</td>
<td>Introductory Management Accounting^6</td>
<td>6</td>
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<tr>
<td>HMGT 3100</td>
<td>Professional Development</td>
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<tr>
<td>BLAW 2301</td>
<td>Business and Public Law^6</td>
<td>6</td>
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<tr>
<td>ECON 2301</td>
<td>Principles of Macroeconomics^4,6</td>
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<tr>
<td>ECON 2302</td>
<td>Principles of Microeconomics^4,6</td>
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<tr>
<td>OPRE 3333</td>
<td>Quantitative Business Analysis^6</td>
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<tr>
<td>or MATH 2333</td>
<td>Matrices, Vectors, and Their Application^6,7</td>
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<tr>
<td>OPRE 3360</td>
<td>Managerial Methods in Decision Making Under Uncertainty</td>
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<tr>
<td>or STAT 2332</td>
<td>Introductory Statistics for Life Sciences</td>
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<tr>
<td>or STAT 3360</td>
<td>Probability and Statistics for Management and Economics</td>
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**Business Core Courses: 27 semester credit hours**

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<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>BCOM 3310</td>
<td>Business Communication</td>
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<tr>
<td>BCOM 4350</td>
<td>Advanced Business Communication</td>
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<tr>
<td>FIN 3320</td>
<td>Business Finance</td>
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<tr>
<td>ITSS 3300</td>
<td>Information Technology for Business</td>
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<tr>
<td>OPRE 3310</td>
<td>Operations Management</td>
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<tr>
<td>OBHR 3310</td>
<td>Organizational Behavior</td>
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<tr>
<td>MKT 3300</td>
<td>Principles of Marketing</td>
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<tr>
<td>BPS 4305</td>
<td>Strategic Management</td>
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<tr>
<td>IMS 3310</td>
<td>International Business</td>
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**III. Elective Requirements: 15 semester credit hours**

**Healthcare Management Core Courses: 12 semester credit hours**

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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>HMGT 3301</td>
<td>Introduction to Healthcare Management</td>
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<tr>
<td>HMGT 3311</td>
<td>Healthcare Accounting</td>
<td></td>
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<tr>
<td>HMGT 4321</td>
<td>Introduction to Healthcare Information Systems</td>
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<tr>
<td>HMGT 3310</td>
<td>Healthcare Regulatory Environment</td>
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**Biology (3 semester credit hours):**

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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>BIOL 4380</td>
<td>Cell and Molecular Biology Laboratory^8</td>
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</table>
Each student is expected to complete a minimum of 160 hours of business-related work to fulfill the JSOM professional practicum requirement.

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 154 semester credit hours if students are required to take BA 1100 or 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. Requires permission of the Biology Undergraduate Advisor to ensure training in recombinant DNA analysis.