School of Natural Sciences and Mathematics

Biology and Healthcare Management (Double Major) (BS)

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

**Degree Requirements** (147-149 semester credit hours)\(^1,\text{2}\)

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

**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, Kelli Palmer, Zhenyu Xuan

**Assistant Professors:** Zachary Campbell, Nikki Delk, Heng Du, Jung-whan (Jay) Kim, Faruck Morcos, Duane D. Winkler, Hyuntae Yoo

**Research Assistant Professors:** Lan Guo, Li Liu

**Senior Lecturers:** Irina Borovkov, Mehmet Candas, Brenna Hill, Wen-Ju Lin, Meenakshi Maitra, Robert C. Marsh, Jing Pan, Elizabeth Pickett, Ruben D. Ramirez, Scott A. Rippel, Ilya Sapozhnikov, Uma Srikanth, Michelle Wilson, Wen-Ho Yu

JSOM Faculty


**Professor Emeritus:** Dale Osborne

**Clinical Professors:** John Barden, Britt Berrett, Abhijit Biswas, Ranavir Bose, Pamela Foster Brady, Shawn Carraher, Larry Chasteen, Paul Convery, David Cordell, Kutsal Dogan, Howard Dover, Forney Fleming III, John Gamino, Randall S. Guttery, Charles Hazzard, William Hefley, Robert Hicks, Gerald (Jerry) Hoag, Marilyn Kaplan, Ching-Chung Kuo, Sonia Leach, Peter Lewin, Jeffrey Manzi, John F. McCracken, Dennis McCuistion, Diane S. McNulty, Joseph Picken, Divakar Rajamani, Daniel Rajaratnam, David Ritchey, Rajiv Shah, Mark Thouin, Keith Thurgood, Jeff Weekley, Habte Woldu, Fang Wu, Laurie L. Ziegler

**Associate Professors:** Nina Baranchuk, Norris Bruce, Jianqing Chen, Zhonglan Dai, Rebecca Files, Xianjun Geng, J. Richard Harrison, Dorothéé Honhon, Kyle Hyndman, Surya N. Janakiraman, Robert L. Kieschnick Jr., Atanu Lahiri, Jun Li, Ningzhong Li, Livia Markóczy, Amit Mehra, Toyah Miller, Ramachandran (Ram) Natarajan, Naim Bugra Ozel, H. Dennis Park, Valery Polkovnichenko, Cuili Qian, 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, Jiying Zhang, Yuan Zhang, Feng Zhao, Yibin Zhou

Clinical Associate Professors: Steven Guengerich, Lale Guler, David Parks, Carolyn Reichert, Avanti P. Sethi, Kelly Slaughter, Jeanne Sluder, James Szot, McClain Watson

Assistant Professors: Mehmet Ayvaci, Qi (George) Chen, Khai Chiong, Emily Choi, Bernhard Ganglmair, Nathan Goldman, Ying Huang, Sora Jun, Sheen Levine, Meng Li, Xiaolin Li, Maria Loumioti, Jean-Marie Meier, Radha Mookerjee, Anyan Qi, Alejandro Rivera Mesias, Alessio Saretto, Simon Siegenthaler, Serdar Simsek, Shaojie Tang, Christian Von-Drathen, Shouqiang Wang, Malcolm Wardlaw, Junfeng Wu, Steven Xiao, Shengqi Ye, Nir Yehuda, Zhe (James) Zhang, Xiaofei Zhao

Clinical Assistant Professors: Shawn Alborz, Athena Alimirzaei, Christina (Krysta) Betanzos, Moran Blueshtein, Judd Bradbury, Jerome Gafford, Ayfer Gurun, Maria Hasenhuttl, Julie Haworth, Jeffery (Jeff) Hicks, Revansiddha Khanapure, Kristen Lawson, Kathryn Lookadoo, Liping Ma, Sarah Moore, Ravi Narayan, Dawn Owens, Parneet Pahwa, Jason Parker, Drew Peabody, Nassim Sohaee


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 2413 Differential Calculus

Life and Physical Sciences: 6 semester credit hours

CHEM 1311 General Chemistry

or CHEM 1315 Honors Freshman Chemistry

CHEM 1312 General Chemistry II

or CHEM 1316 Honors Freshman 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
Choose one course from the following:
  BA 1320 Business is a Global World
  ECON 2301 Principles of Macroeconomics
  ECON 2302 Principles of Microeconomics

Component Area Option: 6 semester credit hours
Choose two courses from the following:
  MATH 2414 Integral Calculus
  BA 1320 Business is a Global World
  ECON 2301 Principles of Macroeconomics
  ECON 2302 Principles of Microeconomics

II. Major Requirements: 87-89 semester credit hours

Biology Major Preparatory Courses: 20-22 semester credit hours beyond Core Curriculum
  CHEM 1111 General Chemistry Laboratory I
    or CHEM 1115 Honors Freshman Chemistry Laboratory I
  CHEM 1112 General Chemistry Laboratory II
    or CHEM 1116 Honor Freshman Chemistry Laboratory II
  CHEM 1311 General Chemistry I
    or CHEM 1315 Honors Freshman Chemistry I
  CHEM 1312 General Chemistry II
    or CHEM 1316 Honors Freshman Chemistry II
  CHEM 2123 Introductory Organic Chemistry Laboratory I

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<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>CHEM 2125</td>
<td>Introductory Organic Chemistry Laboratory II</td>
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<tr>
<td>CHEM 2323</td>
<td>Introductory Organic Chemistry I</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 2325</td>
<td>Introductory Organic Chemistry II</td>
<td>4</td>
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<td>MATH 2413</td>
<td>Differential Calculus</td>
<td>5, 6, 7</td>
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<tr>
<td>MATH 2414</td>
<td>Integral Calculus</td>
<td>5, 6, 7</td>
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<tr>
<td>PHYS 2325</td>
<td>Mechanics and PHYS 2125 Physics Laboratory I</td>
<td>4</td>
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<tr>
<td>or PHYS 2421</td>
<td>Honors Physics I - Mechanics and Heat and PHYS 2125</td>
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<td>or PHYS 1301</td>
<td>College Physics I and PHYS 2125 Physics Laboratory I</td>
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<tr>
<td>PHYS 2326</td>
<td>Electromagnetism and Waves and PHYS 2126 Physics Laboratory II</td>
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<td>or PHYS 2422</td>
<td>Honor Physics II - Electromagnetism and Waves</td>
<td>4</td>
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<tr>
<td>or PHYS 1302</td>
<td>College Physics II and PHYS 2126 Physics Laboratory II</td>
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**Biology Core Courses: 29 semester credit hours**

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<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>BIOL 2111</td>
<td>Introduction to Modern Biology Workshop I</td>
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<td>BIOL 2112</td>
<td>Introduction to Modern Biology Workshop II</td>
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<td>BIOL 2281</td>
<td>Introductory Biology Laboratory</td>
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<td>BIOL 2311</td>
<td>Introduction to Modern Biology I</td>
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<tr>
<td>BIOL 2312</td>
<td>Introduction to Modern Biology II</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 3101</td>
<td>Classical and Molecular Genetics Workshop</td>
<td>4</td>
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<tr>
<td>BIOL 3102</td>
<td>Eukaryotic Molecular and Cell Biology Workshop</td>
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<td>BIOL 3161</td>
<td>Biochemistry Workshop I</td>
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<tr>
<td>BIOL 3162</td>
<td>Biochemistry Workshop II</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 3301</td>
<td>Classical and Molecular Genetics</td>
<td>4</td>
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<tr>
<td>BIOL 3302</td>
<td>Eukaryotic Molecular and Cell Biology</td>
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<td>BIOL 3361</td>
<td>Biochemistry I</td>
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<tr>
<td>BIOL 3362</td>
<td>Biochemistry II</td>
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<tr>
<td>or BIOL 3335</td>
<td>Microbial Physiology</td>
<td>4</td>
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<tr>
<td>BIOL 3380</td>
<td>Biochemistry Laboratory</td>
<td>4</td>
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**Business Major Preparatory Courses: 12 semester credit hours beyond Core Curriculum**

<table>
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<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>ACCT 2301</td>
<td>Introductory Financial Accounting</td>
<td>4</td>
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<tr>
<td>ACCT 2302</td>
<td>Introductory Management Accounting</td>
<td>4</td>
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BLAW 2301 Business and Public Law

BA 1310 Principles of Business Decision Making
or ECON 2301 Principles of Macroeconomics

BA 1320 Business is a Global World
or ECON 2302 Principles of Microeconomics

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: 26 semester credit hours**

BA 1100 Business Basics and HMGMT 3100 Professional Development
or HMGMT 3200 Introduction to Business and Professional Development

BCOM 3310 Business Communication
BCOM 4350 Advanced Business Communication
FIN 3320 Business Finance

IMS 3310 International Business
ITSS 3300 Information Technology for Business

OPRE 3310 Operations Management

OBHR 3330 Introduction to Human Resource Management
or OBHR 3310 Organizational Behavior

MKT 3300 Principles of Marketing

**III. Elective Requirements: 18 semester credit hours**

**Guided Electives: 18 semester credit hours**

A zero semester credit hour practicum experience is required.

HMGMT 4090 Healthcare Management Internship

A zero semester credit hour community engagement experience is required.

BA 4095 Social Sector Engagement and Community Outreach Practicum

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

**Healthcare Management Core Courses: 15 semester credit hours**

HMGMT 3301 Introduction to Healthcare Management

HMGMT 3311 Healthcare Accounting
HMGT 4321 Introduction to Healthcare Information Systems
HMGT 3310 Healthcare Regulatory Environment
HMGT 4380 Capstone in Healthcare Management

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 for Thesis 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 148-150 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. Indicates a prerequisite class to be completed before enrolling for upper-division classes.
5. A required Major course that also fulfills a Core Curriculum requirement. Semester credit hours are counted in Core Curriculum.
6. 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.
7. Students may substitute MATH 2413 and MATH 2414 by taking MATH 2417 and MATH 2419.
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.