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 (147-148 semester credit hours)\(^1\), \(^2\)

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, Howard 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, Divakar Rajamani, Daniel Rajaratnam, David Ritchey, Rajiv Shah, Mark Thounin, 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, Dorothée 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, Jieying 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
**Senior Lecturers:** Semiramis Amirpour, Frank Anderson, Vivek Arora, Tiffany A. Bortz, Richard Bowen, Monica E. Brussolo, Juliann Chapman, George DeCourcy, Eugene (Gene) Deluke, Alexander Edsel, Amal El-Ashmawi, Carol Flannery, Mary Beth Goodrich, Thomas (Tom) Henderson, Jennifer G. Johnson, Jackie Kimzey, Chris Linesteadt, Joseph Mauriello, Victoria D. McCrady, Edward Meda, Robert (Stephen) Molina, Prithi Narasimhan, Mohammad Naseri Taheri, Madison Pedigo, Matt Polze, James Richards, Debra Richardson, Anindita Roy Bardhan, Kashif Saeed, Margaret Smallwood, Steven Solcher, Luell (Lou) Thompson, Amy L. Troutman, Robert Wright, Kathy Zolton, Hubert Zydorek

**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

## I. Core Curriculum Requirements: 42 semester credit hours

### Communication: 6 semester credit hours

- **COMM 1315** Public Speaking
- or **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)

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[1] Core Curriculum Requirements: 42 semester credit hours
[2] Communication: 6 semester credit hours
[3] or **COMM 1311** Survey of Oral and Technology-based Communication
[4] **RHET 1302** Rhetoric
[5] Mathematics: 3 semester credit hours
[6] or **MATH 2413** Differential Calculus
[7] or **CHEM 1315** Honors Freshman Chemistry
[8] **CHEM 1312** General Chemistry II
[9] or **CHEM 1316** Honors Freshman Chemistry II
[10] Language, Philosophy and Culture: 3 semester credit hours
[11] 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 1310 Making Choices in Free Market Systems
- BA 1320 Business in 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 1310 Making Choices in Free Market Systems
- BA 1320 Business in a Global World
- ECON 2301 Principles of Macroeconomics
- ECON 2302 Principles of Microeconomics

II. Major Requirements: 87-88 semester credit hours

Business Major Preparatory Courses: 12 semester credit hours beyond Core Curriculum
- ACCT 2301 Introductory Financial Accounting
- ACCT 2302 Introductory Management Accounting
- BLAW 2301 Business and Public Law
- BA 1310 Making Choices in Free Market Systems
  or ECON 2302 Principles of Microeconomics
- BA 1320 Business in a Global World
  or ECON 2301 Principles of Macroeconomics

Managerial Methods in Decision Making Under Uncertainty
or Introductory Statistics for Life Sciences
or Probability and Statistics for Management and Economics

Business Core Courses: 26 semester credit hours

Business Basics and Professional Development
or Introduction to Business and Professional Development
Business Communication
Advanced Business Communication
Business Finance
International Business
Information Technology for Business
Introduction to Human Resource Management
or Organizational Behavior
Operations Management
Principles of Marketing

Biology Major Preparatory Courses: 20-21 semester credit hours beyond Core Curriculum

General Chemistry Laboratory I
or Honors Freshman Chemistry Laboratory I
General Chemistry Laboratory II
or Honors Freshman Chemistry Laboratory II
General Chemistry I
or Honors Freshman Chemistry I
General Chemistry II
or Honors Freshman Chemistry II
Introductory Organic Chemistry Laboratory I
Introductory Organic Chemistry Laboratory II
Introductory Organic Chemistry I
Introductory Organic Chemistry II
Differential Calculus
Integral Calculus
Mechanics and Physics Laboratory I
or **PHYS 2421** Honors Physics I - Mechanics and Heat
or **PHYS 1301** College Physics I and **PHYS 2125** Physics Laboratory I
**PHYS 2326** Electromagnetism and Waves and **PHYS 2126** Physics Laboratory II
or **PHYS 2422** Honors Physics II - Electromagnetism and Waves
or **PHYS 1302** College Physics II and **PHYS 2126** Physics Laboratory II

**Biology Core Courses: 29 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

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

**Guided Electives: 18 semester credit hours**

A zero semester credit hour practicum experience is required.

- **HMGТ 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**

- **HMGТ 3301** Introduction to Healthcare Management
HMGT 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\textsuperscript{11}

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 148-149 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. Certain courses listed are prerequisites for major core (e.g., BA 1320 or ECON 2301 for IMS 3310), major concentration, or major related courses. Choose accordingly.

9. JSOM freshmen are required to take BA 1100 and HMGT 3100. Transfer students and students new to JSOM are required to take HMGT 3200.

10. Students who complete PHYS 2421 do not need to complete PHYS 2125.

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

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