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, 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, Divakar Rajamani, Daniel Rajaratnam, David Ritchey, Rajiv Shah, Mark Thounin, Keith Thurgood, Jeff Weekley, Habte Woldu, Fang Wu, Laurie L. Ziegler

**Associate Professors:** Mehmet Ayvaci, 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:** Shawn Alborz, Steven Guengerich, Lale Guler, Dawn Owens, David Parks, Carolyn Reichert, Avanti P. Sethi, Kelly Slaughter, Jeanne Sluder, James Szot, McClain Watson

**Assistant Professors:** 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:** 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, Parneet Pahwa, Jason Parker, Drew
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)

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\(^4\)\(^5\)

**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 **HMG 3100** Professional Development\(^9\)

or **HMG 3200** Introduction to Business and Professional Development\(^9\)

**BCOM 3310** Business Communication

**BCOM 4350** Advanced Business Communication

**FIN 3320** Business Finance

**IMS 3310** International Business

**ITSS 3300** Information Technology for Business

**OBHR 3330** Introduction to Human Resource Management

or **OBHR 3310** Organizational Behavior

**OPRE 3310** Operations Management

**MKT 3300** Principles of Marketing

**Biology Major Preparatory Courses: 20-21 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** Honors Freshman Chemistry Laboratory II

**CHEM 1311** General Chemistry I\(^5\)

or **CHEM 1315** Honors Freshman Chemistry I\(^5\)

**CHEM 1312** General Chemistry II\(^5\)

or **CHEM 1316** Honors Freshman Chemistry II\(^5\)

**CHEM 2123** Introductory Organic Chemistry Laboratory I\(^4\)

**CHEM 2125** Introductory Organic Chemistry Laboratory II\(^4\)

**CHEM 2323** Introductory Organic Chemistry I\(^4\)

**CHEM 2325** Introductory Organic Chemistry II\(^4\)

**MATH 2413** Differential Calculus\(^5\)\(^6\)\(^7\)

**MATH 2414** Integral Calculus\(^5\)\(^6\)\(^7\)
PHYS 2325 Mechanics and PHYS 2125 Physics Laboratory I
or PHYS 2421 Honors Physics I - Mechanics and Heat¹⁰
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 I⁴
- BIOL 2112 Introduction to Modern Biology Workshop II⁴
- BIOL 2281 Introductory Biology Laboratory⁴
- BIOL 2311 Introduction to Modern Biology I⁴
- BIOL 2312 Introduction to Modern Biology II⁴
- 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.
- HMGT 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**
HMGT 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
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.