MS in Quantitative Biomedical Sciences
Welcome to the presentation!
What we will cover today

• Dartmouth College and Quantitative Biomedical Sciences program overview
• Degree requirements and timeline
• Application and admissions
• Program training and academics
• Q & A
QBS mission and philosophy

The QBS MS programs seek to provide rigorous quantitative training to develop analytical and prudent professionals for productive careers in healthcare, biomedicine, and data science.

The modern quantitative career in industry or academia relies upon speaking more than one language to successfully collaborate in a highly multidisciplinary environment.
Where is Dartmouth College?
We are on the border of New Hampshire and Vermont
About Dartmouth

Founded in 1769, Dartmouth is a member of the Ivy League and is a liberal arts college with 4 professional schools.

- Geisel School of Medicine
- Thayer School of Engineering
- Tuck School of Business
- Guarini School of Advanced and Graduate Studies
Organization

- Oversees all non-professional graduate programs (PhD and MS)
- Ratifies new and modified curricula
- Confers degrees
- Sponsors student activities and events
- Empowers graduate student council
Organization

- Establishes program structure
- Administers programs
- Hires faculty and empowers research
- Provides staff and facilities
Six reasons to join QBS at Dartmouth

Community
Interdisciplinary
Careers
Ivy League experience
Faculty
Alumni
What will I learn in the Dartmouth QBS program?

The Dartmouth QBS program trains highly-qualified students in Bioinformatics, Biostatistics, Epidemiology, and Health Data Science for careers in academia and industry.
Examples of data sets you will encounter

• Electronic medical records
• Randomized trials
• Genetic and genomic data
• Social media and network data
• Mobile device data
• Imaging data
• Other “omics” data
• Medical claims data
QBS degrees

Doctor of Philosophy (PhD)
- Interdisciplinary training in Biostatistics, Bioinformatics, and Epidemiology
- First class in 2011

Master of Science (MS)
- Concentrations in Health Data Science, Epidemiology, Medical Informatics
- First class in 2018
QBS leadership

Scott Gerber, PhD

- Director, Quantitative Biomedical Sciences
- Professor of Molecular and Systems Biology
- Kenneth E. and Carol L. Weg Distinguished Professor
- Director, Cancer Signaling, Genomes & Networks Research Program, Dartmouth Cancer Center
QBS leadership

Rob Frost, PhD
- Associate Director, Quantitative Biomedical Sciences
- Assistant Professor of Biomedical Data Science
- Member, Dartmouth Cancer Center
- Investigator, Center for Quantitative Biology
QBS administration

Susan Diesel, PhD
Program and Operations Director

Rosemary White
Program Coordinator

Kristine Giffin, PhD
Director of Academic and Student Affairs
The QBS program is

- 53 faculty members
- 35 second-year MS students, 28 first-year MS students
- 35 PhD students
- Interdepartmental and collaborative across Dartmouth programs, schools, and departments
2022 cohort demographics

- International: 56%
- Male: 56%
- Female: 44%
- Average age: 24
QBS faculty

53 faculty members in an interdepartmental program, with collaborations between faculty of QBS and other Dartmouth PhD programs

Geisel School of Medicine at Dartmouth

- Department of Epidemiology
- Department of Biomedical Data Science
- Department of Molecular and Systems Biology
- The Dartmouth Institute for Health Policy and Clinical Practice (TDI)
- Clinical departments

The Thayer School of Engineering
QBS faculty

53 faculty members in an interdepartmental program, with collaborations between faculty of QBS and other Dartmouth PhD programs

Dartmouth College of Arts and Sciences
- Biological Sciences, Computer Science, Mathematics

Centers at Dartmouth-Hitchcock Medical Center and Geisel School of Medicine
- Dartmouth Cancer Center
- Dartmouth Synergy (Clinical and Translational Science Award; CTSA)
- Children’s Environmental Health Center
- COBRE Center for Quantitative Biomedical Research and Molecular Epidemiology
- COBRE Center for Quantitative Biology
Degree schedule and options

- 15 months = 5 terms
- 3 concentrations: Health Data Science, Epidemiology, Medical Informatics
- 4+1 MS program for Dartmouth undergrads = 4 terms
- Applied capstone experience during second Summer term

- 18 units, 13-14 core units + 4-5 elective units
- 3 units during the Summer term, 4 units other terms
- Independent study, journal clubs
Priority application deadline December 1, 2022

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<thead>
<tr>
<th>Health Data Science</th>
<th>Epidemiology</th>
<th>Medical Informatics</th>
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<tbody>
<tr>
<td>Show 3 of these on your application:</td>
<td>1 course in calculus</td>
<td>1 course in calculus</td>
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<td>1 course in calculus</td>
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<td>1 courses in calculus</td>
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<td>1 course in statistics or equivalent experience</td>
<td>1 course in statistics or equivalent experience</td>
<td>1 course in statistics or equivalent experience</td>
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<td>1 course in programming or equivalent experience</td>
<td>1 course in programming or equivalent experience</td>
<td>1 course in programming or equivalent experience</td>
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<td>1 course in linear algebra</td>
<td>1 course in linear algebra</td>
<td>1 course in linear algebra</td>
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<td>1 course in multivariable calculus</td>
<td>1 course in multivariable calculus</td>
<td>1 course in multivariable calculus</td>
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Additional application requirements
3 letters of recommendation, personal statement, CV/resume, unofficial transcripts
Test scores

- Unofficial scores are submitted with your application, official scores if you accept an offer of admission
- GRE is optional this year
- TOEFL or IELTS is required for international students unless you have received a degree from an English-language institution
Holistic application review

We look at all your submitted materials in our evaluation of your application

- Grades and test scores
- Research and work experience
- Relevant course work
- Mentor, supervisor, manager references
- Personal essay and statements
Concentrations and career opportunities

Health Data Science emphasizes critical thinking about data, with a quantitative approach to problem solving.
Concentrations and career opportunities

Health Data Science emphasizes critical thinking about data, with a quantitative approach to problem solving.

- Big data in industry or academics
- Health care
- Biomedical research
Concentrations and career opportunities

Epidemiology emphasizes interdisciplinary quantitative epidemiological training and epidemiologically focused capstone
Concentrations and career opportunities

Epidemiology emphasizes interdisciplinary quantitative epidemiological training and epidemiologically focused capstone

- Biomedical research in industry or academia
- Private industries
- Government agencies
- Nonprofit health organizations
Concentrations and career opportunities

Medical Informatics training can be applied to medical and health services data in medical and surgical registries, medical records, medical claims, and surveys.
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- Health care
- Biomedical research in industry or academia
- Government agencies
- Private industry
- Nonprofit health organizations
QBS MS capstone experience

Capstone during second Summer term
Culminating experience incorporating core courses
  - Local placement with PI
  - Internship placement
  - Self-led project
Paid or unpaid
Visa-holders enroll in CPT
QBS MS capstone and post-graduate placement resources

- Chandlee Bryan, Career Services Manager
- Center for Professional Development
- Guarini Career Services
- On-campus and remote career fairs
- QBS information sessions
- Handshake, LinkedIn, others
2022 capstone internships

- Walmart
- Dartmouth College research labs
- CVS Health
- Element Biosciences
- Novartis
- Varian Medical Systems
- McKinsey
- Philips
- Tesla
- Brigham Tech Foundation
- Dragonfly Capital
- Progressive Leasing
- St. Jude’s Children’s Hospital
## Tuition and program costs

<table>
<thead>
<tr>
<th>Budget</th>
<th>Amount</th>
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<tr>
<td>Tuition</td>
<td>$78,120</td>
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<tr>
<td>Room and board</td>
<td>$34,750</td>
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<td>Books and supplies</td>
<td>$2,627</td>
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<td>Activity fee</td>
<td>$120</td>
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<td>Document fee</td>
<td>$100</td>
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<td>Health access fee</td>
<td>$515</td>
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<td>Local transportation</td>
<td>$2,630</td>
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<td>Health insurance</td>
<td>$5,203</td>
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<td>Personal allowance</td>
<td>$3,850</td>
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<tr>
<td><strong>TOTAL</strong></td>
<td><strong>$127,915</strong></td>
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Working at Dartmouth

Research lab opportunities
Student employment office
Teaching assistant positions

Visa holders
  • 20 hours per week when classes in session
  • 40 hours per week when classes not in session
  • Only work for Dartmouth College, no other employer
Important factors

- Cohort size around 10 PhD students, 30 MS students
- MS and PhD students take courses together
- Faculty teach every course
- Strongly encourage and welcome interaction with faculty
- Diverse applied opportunities: breadth and depth
- Dartmouth has abundance of resources
- Access to graduate level courses in engineering and business
Spring checklist

Prepare

Think

Review

• Prepare for your first courses
• Think critically about personal goals, academics, and career goals
• Review the QBS website and identify course offerings that may support your goals
COVID-19 and Dartmouth

See Dartmouth’s Health and Prevention page for up-to-date information about

- Arriving on campus
- Ongoing prevention
- Campus resources
- https://covid.dartmouth.edu/
Questions?

quant.biomed.sci@dartmouth.edu

https://geiselmed.dartmouth.edu/qbs/
Thank you