

Charles I. Morton IV, Ph.D.

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Brown University, Box H, Providence, RI 02912

EDUCATION

Massachusetts Institute of Technology

Cambridge, MA

Ph.D., Molecular and Systems Pharmacology and Toxicology

June 2009

Department of Biological Engineering

Metabolic and Mechanistic Exploration of a Novel Programmable Genotoxicant Against Prostate Cancer

Thesis Committee: Prof. Steven Tannenbaum (Chair), Prof. Douglas Lauffenburger, Dr. Robert Croy

(Principal Investigator), Prof. John Essigmann (Advisor)

Norman Leventhal Presidential Fellow, 2001

B.S., Chemical Engineering, minor in Biomedical Engineering

June 1997

Advisor: Prof. Karen Gleason; Minor Advisor: Prof. Linda Griffith

Boulé Foundation Scholar, 1993-1997

Xerox Technical Fellow, 1994

PROFESSIONAL AND RESEARCH EXPERIENCE

Brown University Department of Chemistry

Providence, RI

Assistant Teaching Professor

June 2025–Present

Lecturer (detailed course history in **TEACHING** section beginning on page 2)

June 2016–May 2025

Signet Education/Veritas Tutors

Cambridge, MA

Tutor Coordinator

June 2012–April 2014

Provided pedagogical guidance, troubleshooting, and mentorship of tutors; analyzed combinations of personalities and approaches that yield the best tutoring engagements; developed tutor training materials; planned and implemented professional development seminars.

Master Tutor

November 2011–December 2018

Delivered over 2000 hours of one-on-one instruction to 100+ students in all levels of math, chemistry, physics, engineering, and writing for clients ranging in age from 8–44. Specialized in students struggling with learning disabilities or recovering from school absences and accelerated students seeking enrichment programs. Developed summer bridge curricula for late HS and early college learners from disadvantaged backgrounds or on individualized education programs.

St. Elizabeth's Medical Center | Tufts University School of Medicine

Boston, MA

Postdoctoral Fellow – Center of Cancer Systems Biology

August 2009–February 2012

Developed computational models for solid tumor growth kinetics within the cancer stem cell paradigm; quantified miRNA content of circulating microvesicles; represented Center on NIH Integrated Cancer Biology Program's (ICBP) Young Investigators committee (2010); organized journal club (2011).

Arthur D. Little Corporation

Cambridge, MA

Research Analyst – Technology and Product Development Division

April 1998–July 2000

Modeled performance of alternative energy technologies, including gas-to-liquid processing of oil field-associated natural gas into clean diesel, solid oxide fuel cell device integration, and small particle catalyst generation.

Massachusetts Institute of Technology

Cambridge, MA

Department of Chemical Engineering

December 1996–September 1997

Undergraduate Researcher (UROP)

Advisors: Prof. Robert Langer, Prof. Guillermo Ameer (Northwestern)

Assembled and tested an extracorporeal blood filtration device allowing deheparinization of blood in series with clinical kidney dialysis.

Suntory Ltd.**Katsura Brewery**, Nagaokakyo, Kyoto**Research and Technology Development Center**, Yamazaki, Osaka*Chemical Engineering Research Assistant – MIT Japan Program*

Measured the efficacy of various polymer membranes in lactobacillus rejection downstream of beer fermentation and yeast separation; tested an enzymatic additive process in preventing membrane fouling from glucan accumulation.

Kyoto/Osaka, JAPAN

May–September 1996

Massachusetts Institute of Technology

Department of Chemical Engineering Undergraduate Research Lab

Sponsor: Baxter Pharmaceuticals

Tested novel semipermeable membranes in a small multi-compartment reactor to model xenograft isolation for a developmental artificial pancreas.

Cambridge, MA

September–December 1995

Advisor: Prof. Clark Colton

Rochem Chemical Corporation (later acquired by Pall GmbH)*Research Intern*

Developed reverse osmosis wastewater treatment devices for environmental cleanup. Responsibilities included bench-scale testing, fluid dynamics modeling, and performance evaluation through modeling of the physical and biochemical phenomena responsible for membrane fouling.

Torrance, CA

May–September 1994

TEACHING AND COACHING**Brown University Department of Chemistry***Visiting Lecturer*

CHEM 0350 (Organic Chemistry 1) Instructor

CHEM 0360 (Organic Chemistry 2) Lecturer

CHEM 0350 Instructor

CHEM 0360 Lecturer

CHEM 0350 Lecturer

Providence, RI

Summer 2016

Fall 2016

Spring 2017

Fall 2017

Spring 2018

Lecturer

CHEM 0100 (Introductory Chemistry) Conference Facilitator

CHEM 0360 Lecturer

CHEM 0350 Lecturer

CHEM 1450 (Advanced Organic Lab) Instructor

CHEM 0100 Conference Facilitator

CHEM 0330 (Equilibrium, Rate, and Structure) Conference Facilitator

CHEM 0350 Lecturer

CHEM 0330 Conference Facilitator

CHEM 0350 Lecturer

CHEM 0100 Lecturer and Conference Facilitator

CHEM 0350 Lecturer

CHEM 0360 Lecturer

CHEM 0100 Conference Facilitator

CHEM 0350 Lecturer

CHEM 0360 Lecturer

CHEM 0100 Conference Facilitator

CHEM 0332 (CHEM 0330 Tutorial) Lecturer

CHEM 0350 Lecturer

CHEM 0350 Instructor

CHEM 0100 Conference Facilitator

CHEM 0330 Conference Facilitator

CHEM 0350 Lecturer

CHEM 0350 Lecturer

CHEM 0330 Conference Facilitator

Assistant Teaching Professor

CHEM 0100 Lecturer and Conference Facilitator

CHEM 0350 Lecturer

CHEM 0330 Conference Facilitator

Fall 2018

Fall 2018

Spring 2019

Spring 2019

Fall 2019

Fall 2019

Spring 2020

Spring 2020

Summer 2020

Fall 2020, Spring 2021

Summer 2021

Fall 2021

Fall 2021

Spring 2022

Fall 2022

Fall 2022

Spring 2023

Spring 2023

Summer 2023

Fall 2023

Fall 2023, Spring 2024

Spring 2024

Spring 2025

Spring 2025

Fall 2025

Spring 2026

Spring 2026

Brown University CHEM 0980 Research Projects Advised

Eliana Alweis Spring-Summer 2025
Compilation and organization of CHEM 0330 Group Problem Solving (GPS/conference) materials
 Adam Ibrahim Spring 2026
Design of a workflow to harvest recent organic chemistry publications to generate novel AI-proof problems
 Conenicus Weeden, Alex Rodriguez, and Peter Gonzalez Spring 2022
BORG (Brown Organic Research Group) designed novel practice materials for organic chemistry students

Massachusetts Institute of Technology**Cambridge, MA**

Assistant Coach – Men's Varsity Volleyball 1999-2002, 2004–2017
2010 American Volleyball Coaches Association Division III National Assistant Coach of the Year
Red Auerbach Youth Foundation Volunteer Coach
New England Women's Volleyball Association Senior Classic Event Coordinator
 Assistant Coach – Women's Varsity Volleyball 1999–2012, 2014–2017
2009 MIT Infinite Mile Award
2006 MIT Gold Award
 Teacher's Assistant – School of Engineering
Molecular and Systems Toxicology (20.201, formerly BE.201)
 Prof. Pete Dedon and Prof. Steven Tannenbaum Fall 2001, Winter 2002
Introduction to Chemical Engineering (10.10, formerly 10.001)
 Prof. Greg Rutledge and Prof. Bill Green Fall 1997, Winter 1998

Sudbury Youth Volleyball**Sudbury, MA**

Director, Co-founder September 2024–Present

Boston United Volleyball Club**Wayland, MA**

Boys U14 Coach September 2025–Present

Stanford University**Palo Alto, CA**

Camp Coach – Girls' Volleyball Summers 2007–2010

SERVICE AND MENTORSHIP**Brown University****Providence, RI**

Wellness Program – Chem Dept representative Expected Fall 2026
 STEMJazz research discussion group Spring 2018–Present
 • **Co-Director** June 2026–Present
 STEMFAST (formerly STEM TEAM) Advisory Group Fall 2020–Present
 • **Co-Director** January 2025–Present
 Library Advisory Board August 2020–July 2022
 Freshman advisor (46 advisees) August 2020–Present
 ChemDUG advisor Fall 2019–Spring 2023
 Sophomore advisor (40 advisees) September 2019–Present
 Chemistry Transfer Credit Coordinator June 2019–Present
 Faculty Liaison – Women's Volleyball January 2019–Present
 Panelist – Third World Transition Program (TWTP) August 2018
 GISP Advisor – "Mememes and the Language of the Internet" Spring 2018
 Camp Coach – Women's Volleyball Summer 2018

New England Association of Chemistry Teachers (NEACT)

Member July 2024–Present
 • **Treasurer** July 2026–Present

Lincoln Sudbury Regional High School

Lincoln Sudbury School Committee elected member

• **Co-Chair**

Subcommittees: Policy; Superintendent/Principal Evaluation; Negotiations

Liaison to: Sudbury Parks and Recreation; MASC (Massachusetts Association of School Committees)

Representative to: LS Other Post-Employment Benefits (OPEB) Trustees, Wellness Policy Council

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Sudbury, MA

June 2025–May 2028 (term)

May 2026–Present

Massachusetts Institute of Technology**Cambridge, MA***Undergraduate Research Opportunity Program (UROP)*

Advisee: Jason Bouhenguel

Summer 2007–Fall 2008

Projects: Liquid chromatography and mass spectrometry of small molecule drug metabolites and protein complexes; tissue culture; *in vitro* toxicity assays*Biological Engineering Student Board*

CEHS Outreach Contributor – Mystic Valley Regional Charter School

March 2007

Mediation Representative for Toxicology/Applied Biological Sciences

2004–2006

Co-Director; Undergraduate Curriculum Committee Representative

2003–2004

Tutor – Office of Minority Education

1995–2002

Biology: Introductory Biology (7.012)

Physics: Mechanics (8.01), Electricity & Magnetism (8.02)

Calculus: Calculus I (18.01), Multivariable (18.02), Differential Equations (18.03)

Chemistry: Principles (5.11), Organic 1 (5.12), Organic 2 (5.13), Thermodynamics and Kinetics (5.60),

Biological Chemistry (5.07)

Chemical Engineering: Thermodynamics (10.213), Transport Processes (10.302), Separation

Processes (10.32)

Counselor – MIT Freshman Leadership Program

Summer 1997

Big Brothers Big Sisters of Massachusetts Bay**Boston, MA***Big Brother*

1998–2008

REFEREED JOURNAL ARTICLES

Woodside AJ, Weber PM, Williard PG, Morton CI, Colvin VL, and Robinson JR: [Infographics and Iterative Peer/Near-Peer Review as Tools to Improve Chemistry Communication Skills with General Audiences](#). *J. Chem. Educ.* **2023** 100 (5), 1917-1925. DOI: 10.1021/acs.jchemed.3c00044

Morton CI, Hlatky L, Hahnfeldt P, and Enderling H: [Non-Stem Cancer Cell Kinetics Modulate Solid Tumor Progression](#). *Theoretical Biology and Medical Modelling* 2011 **8**:48.

[Open access: <http://www.tbiomed.com/content/8/1/48/>] DOI: 10.1186/1742-4682-8-48

INVITED LECTURES**Annual Meeting of the Society for Mathematical Biology****Krakow, POLAND**

8th European Conference on Mathematical and Theoretical Biology

29 June 2011

Mini-symposium: Cancer Stem Cells

Tumor Growth Kinetics Modulated by Generational Lifespan of Non-Stem Cancer Cells

Landahl Travel Award

Caritas St. Elizabeth's Medical Center**Boston, MA**

Center of Cancer Systems Biology Seminar Series

21 February 2008

Metabolic and Mechanistic Exploration of Programmable Genotoxins

EDUCATIONAL MEDIA**TED–Ed***Educator (co-writer)*

High School Chemistry – animated series

[Ep 1. If molecules were people](#)[Ep 2. The uncertain location of electrons](#)[Ep 3. How atoms bond](#)[Ep 4. What is the shape of a molecule?](#)[Ep 5. Why does ice float in water?](#)[Ep 6. The strengths and weaknesses of acids and bases](#)[Ep 7. The operating system of life](#)[Ep 8. All of the energy in the universe is...](#)[How do cancer cells behave differently from healthy ones?](#)**ed.TED.com**

April 2013–November 2013

23 July 2013

14 October 2013

15 October 2013

17 October 2013

22 October 2013

24 October 2013

11 November 2013

12 November 2013

5 December 2012

MIT OpenCourseWare*Assistant Producer for Education, Music Director*[5.301 Chem Lab Boot Camp](#)**Cambridge, MA**

December 2011–August 2012

PROFESSIONAL MEMBERSHIPS

New England Association of Chemistry Teachers (NEACT)

American Chemical Society (ACS)

Massachusetts Association of School Committees (MASC)