Margaret S. Menzin
Professor of Mathematics,
Chair of Mathematics and Statistics
Professor of Computer Science
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Education

BA Swarthmore College, Swarthmore PA 1963 with High Honors
MA Mathematics, Brandeis University, Waltham MA 1967
Ph.D. Mathematics, Brandeis University, Waltham MA 1970

Other training:
1964 Service Bureau Corp. subsidiary of IBM: equivalent of a minor in computer science
1964-6 Graduate student in mathematics at Rice University
1983-84 Sabbatical year spent as graduate student in computer science at Boston University
A variety of short courses and workshops, such as those offered by the AMS-MAA, IEEE, ACM and CCSCNE and for software developers. Several on-line Coursera and Udemy courses.

Experience

1969-present Simmons College, Boston MA
- 1969-70 Instructor
- 1970-76 Assistant Professor
- 1976-82 Associate Professor
- 1982-present Professor

I have also chaired the Mathematics Department from 1970-1978 and then for one year or semester intervals on five occasions when the Chair was on sabbatical (most recently in Fall of AY 2005-6 when I lead the departmental review of Math 118, leading to significant changes and standardization); and was director or co-director of the program in Computer Science from its inception in 1985 until 1995.

I am currently Professor of Mathematics and Computer Science and Head of the Program in Mathematics and Statistics.

1963-64 Programmer at SBC subsidiary of IBM

Professional Interests and Activities

In Computer Science on my interests center on web centric programming (including both client-side and server-side programming), data bases, and bio-informatics / health informatics.

Most recently I have also been focusing on bio-informatics, learning non relational databases, and working on both mobile computing and node.js for server-side computing. My work introducing non-relational databases into our first database course led to the SIGCSE2020 panel on that same subject.

In Mathematics my interests focus on mathematical modeling, including financial mathematics, and in the parts of algebra/discrete mathematics which are related to modeling and computing.

Most of these interests are ones that are best done collaboratively, with people in other disciplines. So, it is no surprise that some of my recent presentations have been on collaborating across disciplines and on teaching interdisciplinary courses.

I also spearheaded the formation of the new interdisciplinary undergraduate major and graduate program in Data Science and Analytics.

My professional interests also include use of better pedagogy for teaching mathematics and computer science, and especially those areas where the two disciplines intersect, linkages in those fields between the colleges and high schools and encouraging women to pursue careers in mathematics and computer science.

I am particularly interested in pedagogical issues centered on teaching students to become independent learners and am always eager to experiment with new approaches to teaching. In the past my trajectory in this area has included the use of writing, multiple forms of small group learning, teaching without textbooks (i.e. from professional books and articles) hybrid learning. For example, in Spring 2009 I taught the first "hybrid" (part on-line, part face-to-face) undergraduate course at Simmons. In fall 2012 I "flipped" the (advanced) web programming course (CS321) and in fall 2015 I very successfully "flipped" the intermediate level course in Discrete Mathematics (required for both Math and C.S. majors). For the last several years I have required students in CS321 to use professional books and sites as their primary resources; as of 2018 I required students to use such sources for about half the course and as of 2020 they became the only learning resources. Beginning in 2018 I have made reading documentation an increasingly important skill in the Database course (CS333 now renumbered as CS221.)

Finally, I am interested in and have presented on pedagogical approaches to teaching students to collaborate.

Recent Professional Publications and Presentations

Web Centric Resources Annotated Bibliography

This continually updated annotated bibliography at http://web.simmons.edu/~menzin/WebCentricResources.html has approximately 3,000 entries on a rapidly changing area. The site is sufficiently highly valued to be listed on "Best of the Web" and is one of a relatively small number of general sites referenced at the Web Design site of the University of Minnesota – Duluth

NoSQL in Undergraduate Database Courses is NoProblem

Margaret Menzin, Siram Mohan, David R. Musican, Raja Sooriamurthi Proceedings of the 51st ACM Technical Symposium on Computer Science Education, February 2020 pages 962- 963 https://doi.org/10.1145/3328778.3366962

As part of this panel, we prepared a bibliography of books, cheatsheets and other resources for instructors who wish to introduce NoSQL in their courses. This bibliography may be found at https://tinyurl.com/nosql2020

From Python to JavaScript (being submitted 2021)
Article to enable instructors and the students who have completed CS1 to write JavaScript comparable to the same level in Python. This is especially useful for students who want to use MongoDB.

About jQuery (book 2020)
This book fills the gap between the very rudimentary tutorials found online (e.g. at w3schools.com) and the rather advanced books like *jQuery in Action*, or *Learning jQuery.*

Learning Node
This set of documents is intended to aid other professionals learn node.js. It may be found at http://web.simmons.edu/~menzin/learningNode/ and its existence has already been retweeted multiple times.

Bioinformatics for Freshmen: A model for Interdisciplinary Science –in the panel on papers on Interdisciplinary Courses that Work - April 2015 meeting of the CCSCNE -Consortium Computer Sciences in Colleges – Northeast Region

Computer Scientists Put the Informatics into Bio, Health, and Medical Informatics Education - panel at March 2013 annual national meeting of the Association for Computing Machinery, Denver, CO.
http://dl.acm.org/citation.cfm?id=2445480

Collaboration Techniques that Facilitate Student Growth panel at the April 2012 meeting of the Consortium for Computer Sciences in Colleges – Northeast Region in Quinnipiac, CT. My presentation was on the use of rubrics which reward collaboration for student projects and other techniques.

Teaching Computer Scientists to Play Well With Others – panel at the April 2010 meeting of the Consortium for Computer Sciences in Colleges – Northeast Region in Hartford, CT. My presentation was on the collaboration between my students in CS343 Systems Analysis and Judith Richland's students in Comm 220 Video Production.

Manipulated by Strings
Presentation at the national meeting of the Association for Computing Machinery March 2009 Portland, OR

Resources for Web-Centric Computing - chapter published in "Software Engineering for Modern Web Applications", Dan Brandon, Editor – ISBN 978-1-59904-492-7; 2008. I also served as a reviewer for other chapters in the book.

Teaching without Textbooks – Birds of a Feather Session run with Caroline Eastman of USC at the annual national meeting of the Association for Computing Machinery SIGCSE March 2008 Portland, OR

Recent Simmons College Committees

2020-1	Member, Promotion (to Professor) Committee for a SLIS faculty member.
2020-1	Chair, PDMYR Committee for a senior member of Gwen Ifil College of Media, Arts and Humanities
2020-1	Chair, Mid-Point Review Committee for a faculty member in Mathematics and Statistics
2020-1	Chair, Search Committee for a faculty member (NTT) in Mathematics and Statistics
2020-1	Member, Search Committee for a tenure track faculty member in Statistics and Data Science
2020 -	Member, Retirement Plan Oversight Committee
2019-20	Chair, Tenure and Promotion Committee for a faculty member in the Mathematics and Statistics Program
2019-20	Member, Tenure and Promotion Committee for a faculty member in the Computer Science Program
2017 - 20	Member University Undergraduate Curriculum Committee (UUCC, now renamed UCC)
2017-8	Chair, Promotion (to Professor) Committee for a member of the Business School
2019	Member, Tenure Committee for a faculty member in the Biology Department
2019	Member, Promotion Committee for a SLIS faculty member
2018	Member, Tenure Committee for incoming COCIS Dean
2017 -8	Member Green College (COCIS) Thought Partners
2016-7	Chair PDMYR Committee for a senior member of SLIS faculty
2015-6	Member First Year Review (and Development) Committee for a new SLIS Faculty Member
2015 -	Member Curriculum Committee, College of Arts and Sciences; chair spring 2017
2014- 6	Member Curriculum Committee, School of Library and Information Science
2013- 6	Member, Honors Steering Committee
2012-19	Faculty Advisor to Math-CS Student Liaison
2012 -	Faculty Advisor to Simmons Student Chapter of Association for Computing Machinery
2012-	Convener, Working Group on Data Science and Analytics
2009- 16	Convener, Core Working Group on Graduate Programs in Health Informatics
2009-10	Member Academic Assessment Planning Group (AAPG)
2009-10	Member NEASC Committee on Standard 2 Planning and Evaluation
2008-9	Member Strategic Planning Committee
2008-13	Member Committee on Tenure and Appointments (Chair Fall 2010)
2006-9	Member Workload Study and then Workload Implementation Committees
2001-8	Member Curriculum Committee (Chair for AY2002-3)

Recent Simmons College Presentations and Workshops:

Flip or Flop – Panel Presentation Feb. 2015 at Simmons College, which I organized, on how to successfully flip a course; through Center for Excellence in Teaching |(joint with several other science faculty)

So You Want to Flip a Course – April 2012 presentation with Richard Gurney at Simmons College through the Center for Excellence in Teaching

Organized, and ran a faculty workshop (2 days) on "big data". We worked on the EMC course designed to prepare faculty to teach a course in big data. This required that I find a suitable vehicle for faculty learning (for example, IBM's material is too technical), gather the necessary resources for the workshop and get them installed, work through that and other material myself before hand, and solicit and organize the faculty for the workshop. (About a dozen participated across various schools at Simmons – about two dozen expressed an interest in the topic.)

Student-to-Student, the Real Deal site designed and maintained by my students, and with videos from the Communication Department's Video Production course at http://anita.simmons.edu/~s2s/ 2009-12

What Am I Talking About? Teaching on the (Cutting) Edge
Faculty brown-bag talk on teaching courses where the material is too new to be in textbooks. 2010

Organized Symposium on Health Informatics Spring 2009
This brought six important outside (speakers to the College. (one-hour talks)

Simmons College Sonya Kovalevsky High School Mathematics Days 1988-93; and 2004-2013
Simmons College was the originator of this highly successful program to bring about 100-200 high school girls and their teachers to a college for a day of mathematics. The program was so successful that it was subsequently made national and funded by Exxon. During the time we ran a "Sonya K Day" at Simmons I gave a workshop each year (usually on Markov processes, cryptography, epidemiology or demography), and frequently worked on organization, publicity and fund-raising for this event. I have presented workshops for both students and/or teachers each year and have run panels of young mathematicians talking about their careers, decision to major in math, etc.

Workshop on on-line teaching 2016 – participant – required for on -line teaching in SLIS; multi-week course offered by CET.

Blended Learning Institute – 2009 – Participant as preparation for offering a hybrid course.

Careers In Mathematics – joint with Robert Goldman
This booklet is now available on-line, both through the Association for Women in Mathematics and at numerous university sites world-wide, including in India, the U.K., Canada and Australia.

Other Recent Simmons College and Professional Activities

STEMinars – Spring 2017 organized monthly STEMinars for all STEM faculty at Simmons. Lined up 3 faculty speakers for each month. The STEMinars have been so successful that we already have 2 volunteers for September.

Web-Centric Resources
http://web.simmons.edu/~menzin/WebCentricResources.html
This site is under continuous revision. In Spring of 2017 there was a major re-deign and updating of about 1/3 of the site, and on-going work will continue next year.

Data Science and Analytics – I led a group of faculty from across 3 schools to develop our new innovative undergraduate and graduate programs in this area.

Gen Ed Revision – I was a member of the week-long group which laid out the goals and organization of this program across the four years for undergraduates

Team teaching, with Jennifer Canfield-Roecklin in Chemistry, a Freshman Honors course in bioinformatics.
This course grew into a sophomore level LC in AY 2016-7.

Participant in Fall 2015 panel on STEM Initiatives at Simmons

Participant in Fall 2015 AAC&U Regional Conference on STEM and Underrepresented students (PKAL project)

Participant in NSF-funded Bootcamp on Synthetic Biology for undergraduate students.

Participant in various proposal writing groups for STEM initiatives.

Twitter @msmenzin – I tweet regularly on articles and books related to web technologies and am so identified on the Simmons web site.

Chair of Department of Mathematics and Statistics – July 2013 - present (except for sabbatical AY 2019-20).
This was an older, stable department which had two retirements in two

years. The Department has hired three new people, revised its majors in Mathematics and in Biostatistics to be more rigorous and absolutely current, sponsored numerous events, and refined our procedures for placement from high school into the calculus and statistics sequences. *We are particularly proud that over 5% of all Simmons students major in our Department (compared to a national average of 0.78% in these areas for women!) prior to the restriction on the number of credits a student could take in one semester.*

I also instituted regular meetings with the chairs of Mathematics at Emmanuel and Applied Mathematics at Wentworth, resulting in better scheduling for our students, cross-advertising of advanced courses and sharing adjunct information.

Faculty Sponsor of new (2015 - present) Student Chapter of the Association for Computing Machinery.

Faculty Advisor Math- Computer Science Liaison – As advisor to this student organization I have helped them offer many events, including Career Nights, Think Summer (annual December event to encourage them to apply for NSF-REUs, NIH-SIBSs, etc.). movie nights, and outside speakers.

Initiator – regular meetings of COF Math Chairs, which encourages collaboration across scheduling, upper division course cross-registration, etc. 2015 -

Faculty Advisor for Math – Computer Science Student Liaison 2010- present
As such initiated the annual "Think Summer" event in early December, which encourages our students to apply to NSF-REUs, NIH-SIBs and other competitive summer internships. (We are very successful.) This event, like many other student events, is open to COF majors in our disciplines.

Health Informatics Undergraduate Major – I spearheaded the development of this major, which was approved by the CAS Faculty in May, 2009

Initiative on Graduate Programs in Health Informatics – This was been a major part of my Service at Simmons for 4 years. I organized a group of faculty with representation from 4 of the 5 Schools. We developed an innovative curriculum which built on Simmons' strengths. Inauguration of M.S. was delayed for other reasons.

Freshman and major advising

Independent Study students – in financial mathematics, CFA preparation, actuarial science, number theory, or more advanced web technologies, mathematical modeling.

Financial Mathematics, Mathematics, Biostatistics Career Nights - Organize and bring speakers to the College several times a year..

Health Informatics Speakers – organize at least three and usually more events which bring outside speakers to the College every year.

Participant in several MOOCS or online courses:
EduMOOC 2011 This MOOC focused on on-line learning.
Health Informatics in the Cloud – Coursera course from Georgia Tech – Course instructor accepted several of my suggestions for next time course was offered.
Bioinformatics Algorithms – Coursera from UCSD - audit
Data Analytics – Coursera course from U. of Washington – audit
Learning and Understanding Node.js – from Udemy

Active participant in departmental activities in Math and C.S. Departments. For example, for the last two alumnae reunions (in 2014 and 2010) I made over 400 phone calls, and tracked down on Facebook and LinkedIn many alumnae who the Alumni Office thought were missing.
Similarly, I was an active participant in the 2007 Program Reviews for both departments and was the initiator of the joint minor in Scientific Computation.
I have (eagerly) written and phoned prospective students.

Proposer of ACM 2012 panel on Collaborating Across the Disciplines to Improve Health Care. It is unusual to list a rejected panel, but in this panel (which included the Associate Dean of Library and Information Sciences at the University of North Carolina, an Informatics Nurse from the faculty at Duke School of Nursing, and Nanette Veilleux, the panel got ratings of 6, 6, 5, 5, 4 and 2. (6 is the best). The comments were laudatory and except for the last one (which I suspect was sour grapes) we would have been included at this highly competitive conference.

Media Computation Workshop – Participant in this 3-day workshop on Georgia Tech's approach to CS1.

Active participant in various on-line professional communities (e.g. the ACM-SIGCSE listserv, and the WebDev group) and in shorter professional workshops (e.g. at CCSCNE, IBM, etc.)

Older Simmons and Professional Activities to Provide a Sense of My Experience and Interests:

At Simmons College:

Participant in faculty seminar on writing across the curriculum 2003

Simmons College and Association for Women in Computing – Pioneering Women in Computing December, 1997

Organized conference and moderated panel. This event brought together three pioneering women (from the Grace Hopper Meeting in San Jose), 40 professionals from the AWC, 40 Simmons students and 40 high school students. The pioneers related how they got into computing and their early experiences.
There was a very lively question and answer session, with the questions from the young women being about opportunities in computing today. Dinner (at tables each of which had members of all three groups) followed. AWC has asked us to repeat this event.

Simmons College Institute on Women and Work – 1992 Conference
Tracking Equity in High School Enrollments – Invited talk

Simmons College Summer Institute for High School Mathematics Teachers
1986-90
Co-sponsored by the Association for Women in Mathematics
Organized and taught first institute, which was to turn women high school mathematics teachers into AP computer science teachers. The aim was to have more women teaching this course in high school and ultimately to encourage girls to study computer science. Subsequent institutes were offered in mathematics.
All institutes were for graduate credit and were team taught with a high school teacher. Also did the fund-raising for all institutes.

Lexington Public School System

1989- 2000 Citizens Advisory Committee on Mathematics
Provide sounding board for discussion of mathematics curricula, selection of textbooks, decisions on tracking, use of computers, watching achievements of girls vs. boys in mathematics, etc.

1994- 2000 Citizens Advisory Committee on Science
Similar activities, with a particular interest in having all students exposed to computing.

1990-1992 High School Gender Equity Committee
Undertook major study of boys vs. girls enrollment patterns in all five major areas (math, science, English, social studies and foreign language) by grade (9^{th} –12^{th}), track (level of difficulty), and mark received. Study, in comparison with earlier study, showed that girls were no longer enrolling n top math track in middle school at the same rate as boys. This was traced to the way students were selected for the top track (teacher recommendation, rather than written exam) and the problem was corrected.

1982-87 Designed Computer Games to teach Mathematics and Reading Skills.
Wrote and installed games used system-wide to drill all computational skills for grades k-4 and reading skills for grades 1-2. (System paid a reading specialist to work with me.)

1980-82 Superintendent's Advisory Committee

Provided sounding board on a variety of curricular issues. Undertook major study of boys' vs. girls' achievement and tracking in math based on following a cohort group through national tests for grades 2,4, and 6 and enrollment patterns for grades 7-9. There was no statistically significant difference in either achievement or enrollment patterns

Advisory Boards:

Massachusetts Department of Education 1993-4

Member of review board on Mathematics Frameworks (statewide guidelines for all mathematics curricula grades k-12), an NSF funded project. Also made an invited hour-long presentation to the Frameworks board on requiring computer science in 8th or 9th grade.

WGBH-TV Boston MA 1991-93

Member of science advisory group for Public Television's series "Designing Women" on women in science.

Educational Development Company, Watertown MA 1990-92

Member of advisory board for this NSF funded project on injecting algebra threads into elementary school math curricula.

Bank Street School, New York City, N.Y. 1990-93

Member of advisory board for this NSF funded project working with NYC elementary and middle schools on mathematics instruction (curricula and pedagogy)

Other Selected Activities with High School Teachers and Students:

Friends of Two to the Seventh (New England organization of Advanced Placement Computer Science teachers)

1993-99 co-chair

Simmons has hosted the semi-annual meeting several times.

1995: Why C++ and How to Get There Painlessly – invited talk

1993 Teaching Recursion – Many Examples for Student to Practice - invited talk

1992 Pedagogy for CS is Different – invited talk

Cohasset Public Schools 1993

Member of panel to provide a system-wide review of mathematics and computer science programs grades 7-12.

High School talks:

Have spoken at many high schools in the region (Ashland, Lynn, Watertown, Brookline, etc.) on:

Predicting the Population of the U.S. in 2040

How to Knit Like a Mathematician

Careers in Mathematics

Careers in Computer Science
Toothpaste, Unemployment and Kicking Tires Across the Highway
(Markov processes, suitable for students in Algebra II)
Spies, Banks, and Cable TV (Cryptography, suitable for all in h.s.)
The aim of these talks is to interest students in the subjects and to provide a role model of female mathematician/computer scientist.

Rivier College, Nashua, NH, Sonya Kovalevsky High School Mathematics Day
1993 Invited Presenter – Workshop on Markov Processes
1994 Invited Presenter – Careers in Mathematics
Daniel Webster College, Nashua NH, Technology Career Day
1994 Invited Presenter – Careers in Computing
1995 Invited Presenter – Cryptography Workshop

Other Professional Activities:

Regular participant one-day seminars IBM used to run for computer science faculty

Participant in 2008 summer 3-day workshops (NSF funded) on Computing in Python for multi-media.

College of Computer Science, Northeastern University, Consortium on Computer Science Education 1994-5
Member of consortium that met three times a year to discuss pedagogy in computer science, with particular interest in the first courses.
Invited talk on Teaching Recursion 1994

Women in Mathematics New Natives Video – 1992
I was the mathematical advisor to this video, including gathering all the women interviewed for it; was one of the women interviewed.
Video was sold by Association for Women in Mathematics.

Joint Committee on Women of the Major Mathematics Organizations –
MAA representative 1985-88

MAA New England Regional Meeting -1988
After Discrete Math – What? A Year of Abstract and Applied Algebra –
Invited talk

Courses Taught in Last Eight Years

Mathematics:

Math 118 Introduction to Statistics
Math 210 Discrete Mathematics
Math 211 Linear Algebra
Math 310 Modern Algebra
Math 319 Financial Mathematics

Computer Science:

Honors 101 Using Computers to Understand Disease (freshman Honors course Bioinformatics, paired with a course in biochemistry taught by Jenna Canfield.)
CS112LC Introduction to Computer Science – as part of the LC on Bioinformatics

CS101 www.computing.you
CS 333/221 Database Management Systems
CS/IT 225 Health Informatics (previously IT125 Nursing Informatics); also taught as an LC with Nursing course in Health Promotion.
CS 321 / CS521 / IT 320 Web Services and Web Centric Programming
IT 343 /CS 343 Systems Analysis

Professional Memberships:

Association for Computing Machinery (ACM)
IEEE-Computer Society, (IEEE)
New England Section of the Consortium for Computer Science in Colleges
Computer Science Teachers Associaton (CSTA)
Association for Women in Mathematics (AWM)
Mathematical Association of America (MAA)
Sigma X ;
Phi Beta Kappa