Natalie Stewart

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EDUCATION

Massachusetts Institute of Technology, Cambridge MA
B.s. in Mathematics with Computer Science, expected May 2021
Overall GPA: 5.0/5.0; math GPA: 5.0/5.0

EXPERIENCE

SMALL at Williams College   Summer 2020
Worked with Prof. Colin Adams and 6 other undergraduates on the theory of
hyperbolic links and more general hyperbolic 3-manifolds. Papers pending.

SPUR+ at MIT mathematics department   Summer 2019
Worked with mentor Oron Propp and partner Miles Johnson on modular
representations of Iwahori-Hecke algebras of symmetric groups. Paper available at
https://math.mit.edu/research/undergraduate/spur/documents/2019Johnson-Stewart.pdf

Undergraduate Research at MIT with Brendan Fong   Spring 2019
Worked with Dr. Brendan Fong on applying enriched category theory to project
planning.

TALKS

Estimating link volumes via subdivision (July 2020), given remotely and jointly with
6 other undergraduates. Available at https://youtu.be/BgiOGIJK09M

*Some graphical realizations of two-row Specht modules of Iwahori-Hecke algebras
of the Symmetric Group (August 2019)*, joint with Miles Johnson, final presentation
for the MIT SPUR program.

PERT charts, project planning, and enriched categories (April 2019), for the MIT
Categories Seminar. Available at https://youtu.be/F92J9J_MADA.

SELECTED
COURSEWORK

Graduate courses are marked with an asterisk.

Fall 2020: 18.725* (algebraic geometry 1), 6.849* (geometric folding algorithms)

Spring 2020: 18.218* (topics in combinatorics), 18.784 (seminar in number theory), 18.755* (lie groups and algebras 2), 18.906* (algebraic topology 2)

Winter 2020: 18.s097 (programming with categories)

Fall 2019: 18.405* (advanced complexity theory), 18.650 (fundamentals of statistics) 18.745* (lie groups and algebras 1), 18.905* (algebraic topology 1), 14.04 (intermediate microeconomics)

Spring 2019: 18.200 (principles of discrete applied mathematics), 18.600 (probability and random variables), 18.901 (introduction to topology), 18.952 (theory of differential forms), 14.06 (advanced macroeconomics)

Winter 2019: 18.s097 (applied category theory)

Fall 2018: 18.101 (analysis and manifolds), 18.112 (functions of a complex variable), 18.705* (commutative algebra)

Spring 2018: 18.100B (introduction to real analysis), 18.702 (algebra 2), 6.036 (intro to machine learning)

Fall 2017: 18.701 (algebra 1)

MISC.

Contributor to the nSketches wiki concerning Applied category theory.

Undergraduate assistant for 18.112 (functions of a complex varable) for the fall 2020 term.

Participant in MIT's Directed Reading Program (DRP) during the January 2020 term concerning category theory, including higher category theory.

Graded for 18.700 (linear algebra) for the latter half of the fall 2019 term.

Graded for 18.701 (algebra 1) for the fall 2018 term.