

Mathematics(FSU-teach)

a Mathematics Major for the FSU teaching program

Math Curriculum Committee

August 29, 2014

Introduction

Mathematics has four other undergraduate major codes. Three of these, applied mathematics, biomedical mathematics and pure mathematics, are in the mathematics program. The mathematics FSU-teach option, and is the fourth option in the mathematics program. This options addresses the needs of prospective high school mathematics teachers. Two of the other major options are basically geared for preparing the students for graduate school in pure or applied mathematics. The third option is geared for pre-medical undergraduates with its vast collection of science courses. The FSU-Teach plan for mathematics is a more general cross section of mathematics courses that also hits a few notes, like geometry. Their pedagogical training is in a separate secondary major, which is expected to use an additional 32 hours. The new option will have the same Common Prerequisites as the other Mathematical program options and have the same academic map benchmarks as the pure or the applied mathematics options. All the mathematics faculty will participate it teaching these courses.

Mathematics Courses

The new teaching option will include a (20 hour) mathematics core of the three calculus courses (MAC 2311-2-3), ordinary differential equations (MAP 2302) and linear algebra (MAS 3105). It will include the standard collateral (3 hour) statistics course that all math majors take (STA 4321). The collateral (5 hours) in Physics (PHY 2048c) is required. It will also include a collateral required (3 hour) computing course (COP 3014).

Beyond the core, this option requires courses in four mathematical areas of Analysis, Algebra, Geometry and Modeling. Courses acceptable for each are listed below. Also two elective mathematics courses are required (one of the electives must be at the 3000 level or above).

- Algebra (3 hours) MAS 3301, MAS 4302 or MAS 4203
- Analysis (3 hours) MAA 4402, MAA 4224 or MAA 4226
- Geometry (3 hours) MTG 4212
- Modeling (3 hours) MAP 4103, MAP 4175, MAP 4180 or MAP 4481
- Electives (6 hours) MAA4227, MAD 2104, MAD 3105, MAP 4153 MAP 4170, MAP4202, MAP 4216, MAP 4341, MAS 4106, MAS 4303, MGF 3301, MHF 4302, MTG 4302 or additional courses from the Algebra/Analysis/Geometry/Modeling groups.

Course work for FSU-teach

For math this will include 32 hours of course work. It will count as a major and so no addition minor is required. These courses are (mostly, but not entirely) outside Mathematics. The current list of courses is SMT 1043, SMT 1053, MAT 3505, BSC 4933, SMT3100, SMT 3301, ISC 3523C, HIS 3505, SMT 4664, RED 4335, TSL 4324, and SMT 4985. Some may count for part of the liberal arts requirements.

Course List

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|-----|--------------------------|---|
| 38 | Mathematics (38) | Core (20) + List (18) |
| 41 | Statistics (3) | STA 4321 |
| 44 | Comp Prog (3) | COP 3014 |
| 49 | Physics (5) | PHY 2048C |
| 81 | Education (32) | FSU-teach package for Math |
| 93 | For Lang (12) | Arts & Sciences Intermediate Level Course |
| 119 | Other Liberal Arts (26?) | (Math and Science already covered) |
| 119 | Total (119) | Less if HIS 3505 counts as liberal arts |

Course Number to Course Title

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|----------|--|-----------|---|
| BSC 4933 | Classroom Interactions | COP 3014 | C++ for CS majors |
| HIS 3505 | Perspectives on Sci and Math | ISC 3523 | Research Methods |
| MAA 4224 | Intro to Analysis | MAA 4226 | Advanced Calculus I |
| MAA 4227 | Advanced Calculus II | MAA 4402 | Complex Variables |
| MAC 2311 | Calculus I | MAC 2312 | Calculus II |
| MAC 2313 | Calculus III | MAD 2104 | Discrete Math I |
| MAD 3105 | Discrete Math II | MAD 3703 | Numerical Analysis I |
| MAP 2302 | ODE | MAP 2480 | BioCalculus Lab |
| MAP 4103 | Math Modeling | MAP 4153 | Vector Calculus |
| MAP 4170 | Intro to Actuarial Math | MAP 4180 | Game Theory |
| MAP 4202 | Optimization | MAP 4216 | Calculus of Variations |
| MAP 4341 | Elem PDE I | MAP 4481 | Math Model for Bio Math |
| MAS 3105 | Linear Alg I | MAS 3301 | Intro Modern Algebra |
| MAS 4106 | Linear Alg II | MAS 4203 | Number Theory |
| MAS 4302 | Abstract Algebra I | MAS 4303 | Abstract Algebra II |
| MAT 3505 | Functions and Models | MGF 3301 | Intro to Adv Math |
| MHF 4302 | Math Logic | MTG 4212 | College Geometry |
| MTG 4302 | Elementary Topology | PHY 2048C | Physics |
| | | RED 4335 | Content Area Reading, Sci and Math |
| SMT 1043 | Step 1: Inquiry Approaches to Teaching | SMT 1053 | Step 2: Inquiry-Based Lesson Design |
| SMT 3100 | Knowing and Learning | SMT 3301 | Classroom Interactions |
| SMT 4664 | Project Based Instruction | SMT 4945 | Apprentice Teaching |
| STA 4321 | Intro Math Stat | TSL 4324 | Teaching for Equity in Diverse Classrooms |

Note BSC 4933 is now SMT 4301 Classroom Interactions.