UCONN
UNIVERSITY OF CONNECTICUT

Mathematics-Statistics Major
Suggested Course Sequence

- The following courses are suggested in sequence. Prerequisites are noted for each course.
- All courses are 3 credits, unless otherwise noted.
- Detailed descriptions for each course can be found in the Undergraduate Catalog.

Important Considerations

The Mathematics-Statistics major requires 36 credits at the 2000-level or above in Mathematics and Statistics (in addition to MATH 2110Q or 2130Q), with at least 12 credits in each department.

The required courses for the Mathematics-Statistics major are MATH 2210Q **or** 3210; MATH 2410Q **or** 2420Q; and STAT 3375Q **and** 3445.

- **Please note that STAT 3375Q has MATH 2110Q or 2130Q as a prerequisite, and a grade of C+ or better in Math 2110 or 2130 is required as a prerequisite for this course.**

Students who complete the requirements for the Mathematics-Statistics major will satisfy the computer technology requirement.

To satisfy the information literacy competency and writing in the major requirement, Mathematics-Statistics majors must take one of the following courses: MATH 2194W, MATH 2720W, 2794W, 3796W, or STAT 3494W.

- Please note that STAT 3494W may not be counted toward the required number of major credits for either a Statistics or Mathematics-Statistics major.

Note: STAT 1000Q and 1100Q do not count towards the 36 major credits. Neither does STAT 3494W.

For a Mathematics-Statistics major, the Mathematics courses serve as Related Credits for the Statistics part, while the Statistics courses serve as Related Credits for the Mathematics part. Therefore, Mathematics-Statistics majors need not fill in the Related Credits portion of their Plan of Study.

Required and Suggested Courses for MSTA Majors

("Required" or "Suggested" is indicated for each course)

1. **STAT 1000Q (Introduction to Statistics) or STAT 1100Q (Elementary Concepts of Statistics)**
   - **Required, but does not count toward major credit requirement**
   - 4 credits
   - Offered both Fall and Spring semesters
   - This course teaches/uses MINITAB.

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- This course can be taken at UConn or can be transferred in through a) a UConn Early College Experience course at a Connecticut high school; b) a score of 4 or 5 on the AP Statistics exam.
- This course counts toward General Education Requirements (GER) but does not count toward the 24 credits needed for a Statistics major.

2. **STAT 2215Q (Introduction to Statistics II)**
   - **Prerequisites:** STAT 1000Q or STAT 1100Q.
   - Offered both Fall and Spring semesters.
   - This course teaches/uses MINITAB.
3. **STAT 3025Q (Statistical Methods)**
   - **Suggested**
   - **Prerequisites:** MATH 1122 or 1132 or 1152
   - Offered both Fall and Spring semesters and with limited Summer availability.
   - Students may not receive more than three credits total from STAT 3025 and STAT 3345. Students may not receive credit for STAT 3025Q after they have passed STAT 3445.
   - This course requires knowledge of calculus up to single variable differentiation and integration.
4. **STAT 3115Q (Analysis of Experiments)**
   - **Suggested**
   - **Prerequisites:** STAT 2215Q or STAT 3025Q or instructor consent
   - Offered both Fall and Spring semesters.
   - Credit may not be received for both STAT 3115 and 5315.
   - This course teaches/uses SAS.
   - This course may be offered as STAT 3115Q only or as a combined course with STAT 5315 (a graduate course). Undergraduate majors should take the one that is **not** offered jointly as STAT 5315 when possible.
5. **STAT 3515Q (Design of Experiments)**
   - **Suggested**
   - **Prerequisites:** STAT 2215Q or STAT 3025Q or instructor consent.
   - Offered either Fall or Spring semester.
   - Credit may not be received for both STAT 3515 and STAT 5515.
   - This course teaches/uses SAS.
   - Undergraduate majors should take the one that is **not** offered jointly as STAT 5515 when possible.
6. **STAT 3375Q (Introduction to Mathematical Statistics)**
   - **REQUIRED**
   - **Prerequisites:** MATH 2110 or MATH 2130. **Students must have received a C+ or better in MATH 2110 or 2130 to enroll.**
   - Primarily offered in Fall semester only. Very limited Spring semester availability.

- **This is the first part of a two semester sequence of STAT 3375Q and STAT 3445.**
- Students may not receive credit for both STAT 3375Q and STAT 5585.
- This course requires knowledge of multivariable calculus.
- This course cannot be taken after passing STAT 3445.
- Overall, students do better in this course if they have previously taken STAT 3025Q.
- **Important Note:** Undergraduate students should not take the Honors section of this course, which is a Ph.D. level course and will be at a very high level. In exceptional cases, an Undergraduate Honors student may discuss with the instructor of STAT 3375H and perhaps obtain permission to take the Honors section.

7. **STAT 3445 (Introduction to Mathematical Statistics)**
   - **REQUIRED**
   - **Prerequisites:** STAT 3375Q
   - Primarily offered in Spring semester only. Very limited Fall semester availability.
   - **This is the second part of a two semester sequence of STAT 3375Q and STAT 3445.**
   - Students may not receive credit for both STAT 3445 and STAT 5685. Students may not receive credit for STAT 3025Q after they have passed STAT 3445.
   - **Important Note:** Undergraduate students should not take the Honors section of this course, which is a Ph.D. level course and will be at a very high level. In exceptional cases, an Undergraduate Honors student may discuss with the instructor of STAT 34455H and perhaps obtain permission to take the Honors section.
8. **STAT 3494W (Undergraduate Seminar II)**
   - **Prerequisites:** ENGL 1010 or 1011 or 3800.
   - 1 credit.
   - This is a one credit course that will satisfy the W requirement for the major.
   - Important Note: The 1 credit from STAT 3494W DOES NOT count toward the major credits. Mathematics-Statistics majors may alternatively complete their W in the major through Mathematics courses.

Sequence for Other Statistics Courses

A combination of these courses may be taken to reach the 36 credits required for the major. Please note that not every class is offered each semester.

- **STAT 3965 (Elementary Stochastic Processes)**
  - Also offered as MATH 3170
  - **Prerequisites:** STAT 3025Q or STAT 3375Q or MATH 3445
  - Not open for credit for students who have passed MATH 3170.
  - Typically offered by the Department of Statistics in Fall semesters and by the Department of Math in Spring semesters.

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- Note: This is a difficult course and may be unsuitable for students who are not happy about thinking "abstract mathematical concepts." Undergraduate students may wish to consult with the course instructor prior to enrolling. Some Master's or Ph.D. level Statistics students may take this course for credit.

- **STAT 4525 (Sampling Theory)**
  - **Prerequisites:** STAT 3445 or instructor consent
- **STAT 4875 (Nonparametric Methods)**
  - **Prerequisites:** STAT 3445 or instructor consent
- **STAT 3675Q (Statistical Computing)**
  - 4 credits
  - **Prerequisites:** STAT 3025Q or STAT 3375Q. Recommended preparation: An applied statistics course.
- **STAT 4475 (Statistical Quality Control and Reliability)**
  - **Prerequisites:** STAT 3445
  - This course has not been offered recently.
- **STAT 4625 (Introduction to Biostatistics)**
  - **Prerequisites:** STAT 3025Q or instructor consent
  - Note: This seems to be an accessible course for majors.
- **STAT 4825 (Applied Time Series)**
  - **Prerequisites:** STAT 3445 or instructor consent
  - Students seem to do well in this course after having taken STAT 3025Q and STAT 3115Q.
  - Teaches/uses R.
- **STAT 4190 (Field Study Internship)**
  - Offered Fall and Spring semesters.
  - Credits and hours by arrangement.
  - Usually, students get 3 credits. Students are allowed to receive payment for the internship.
  - Students most often take this during the summer before their senior year, provided they have met the following prerequisites:
    - Completion of Freshman – Sophomore General CLAS requirements
    - Completion of the following courses with a grade of C or better: STAT 3025Q or STAT 3375Q AND STAT 3115Q or STAT 3515Q.
  - Students taking this course will be assigned a final grade of S (satisfactory) or U (unsatisfactory), so although the credits may count toward the 24 major credits, the grade will not affect the student's GPA.
  - This is meant for supervised field work relevant to some area of Statistics with a regional industry, government agency, or non-profit organization. Evaluated by the field supervisor and by the instructor (based on a detailed written report submitted by the student).

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- **STAT 4389 (Undergraduate Research)**
  - 3 credits
  - Offered Fall and Spring semesters.
  - Hours by arrangement.
  - Open only with consent of instructor.
  - This course is meant for supervised research in probability or statistics. A final written report and oral presentation are required.

The following course is mainly intended for Engineering/EE majors. Statistics or Mathematics-Statistics majors do not usually take this.

- **STAT 3345 (Probability Models for Engineers)**
  - **Prerequisites:** MATH 2110 or STAT 3375
  - Offered either Fall or Spring semester.
  - Students may not receive more than three credits total from STAT 3345 and STAT 3025Q or from STAT 3345 and STAT 3375Q. Not open for credit to students who have passed STAT 3445.
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Related Courses

For a Mathematics-Statistics major, the Mathematics courses serve as Related Credits for the Statistics part, while the Statistics courses serve as Related Credits for the Mathematics part. Therefore, Mathematics-Statistics majors need not fill in the Related Credits portion of their Plan of Study.

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