

Advice for mathematics majors enrolled in or considering
the *actuarial science concentration* and for any LSU
students considering being actuaries

Actuary is consistently rated as one of the best jobs in America. In almost every category, such as work environment, employment outlook, job security, growth opportunity, and salary, a career as an actuary is hard to beat.

- paraphrased from www.beanactuary.org

Preparation in actuarial science at the undergraduate level is largely mathematics, statistics, and computer science for the business world and risk management. LSU actuarial science concentration students who did not want to be actuaries have found employment or gone into master's degree programs in analytics, statistics, financial engineering, and business.

The Actuarial profession.

Actuaries analyze the costs of risk and uncertainty. They need to learn mathematics, statistics, and finance. It is a small profession—there were about 33,600 jobs for actuaries in 2024. This is small compared to some of the more familiar professions: There are 864,800 lawyers, 3,391,000 registered nurses, and 839,000 physicians. There is a good outlook for growth in the decade 2024–2034 with 22% growth predicted (average growth is predicted at 3%).¹

Our history is that students who have a good gpa, fulfilled their VEE requirements, passed 3 actuarial exams, and have had an internship, have found entry level actuarial positions. The LSU program includes courses for all VEE requirements and 6 actuarial exams of which 5 are required by the SOA.

Considering being an actuary?

Being an actuary can be a great profession to enter, but it has to suit your personality, temperament, and work habits. It requires that you are willing to devote many hours to self-study in order to pass a series of rigorous exams. ***By preparing for and taking Exam FM or Exam P early in your program, you can find if you have the temperament to prepare for a long series of exams.*** See #1 and #2 below. More information on the exam requirements and the profession is available at www.beanactuary.org.

For any LSU student—regardless of their major—who wants to prepare to be an actuary, there is a basic, stripped-down core of courses that is the minimum to get started. It consists

¹ *Actuaries: Occupational Outlook Handbook*, U.S. Bureau of Labor Statistics, US Department of Labor.

of approximately 31 hours of mathematics (1550, 1552, 2057, 2085, and courses for specific exams), 3 hours of accounting (2001 or 2002), 3 hours of finance (3715 or 3716), 7 hours of experimental statistics (3201 and 4142), and 3 hours of economics (2030); but some courses in the list have prerequisites and there are many other courses to improve job and advancement prospects.

Advice about the program of study.

1. Take MATH 3050 Interest Theory the fall after MATH 1552. Take Exam FM at the first opportunity after completing MATH 3050. This will likely be in December or February.

You need to devote more time to preparing for Exam FM than just studying for Math 3050. Studying for Exam FM should take about 300 hours. Studying and attending Math 3050 should (in theory) take 15 hours a week or 225 hours total. If you really devote 15 hours a week to Math 3050, then you should need to devote an additional 75 to exam preparation. If you attempt Exam FM and fail it, it does not matter. You only lost the exam fee. There is no stigma associated with failing an exam.

2. Take MATH 3355 (Probability) at the earliest opportunity. You may take MATH 3355 after completing MATH 1552 and while taking MATH 2057. You should complete MATH 3355 before the end of your 2nd year and earlier if you enter with advanced placement in Calculus. I recommend taking Exam P at the first opportunity, which is usually within a few weeks of completing MATH 3355.

You need to devote more time to preparing for Exam P than just studying for Math 3355. Studying for Exam P should take about 300 hours. Studying and attending Math 3355 should (in theory) take 9 hours a week or 135 hours total. If you attempt Exam P and fail it, it does not matter. You only lost the fee. There is no stigma associated with failing an exam.

3. Get some programming experience early to help get an internship. Get an introduction to programming by the end of your sophomore year or junior year and include your plan to complete it on your resume. You may obtain some programming experience in several ways:

- a. Take MATH 2105 and ISDS 1100. MATH 2105 gives background in Python. ISDS 1100 introduces Excel. To take MATH 2105 as a junior, you will have to take MATH 2085 as a sophomore. ISDS 1100 may be taken by freshmen.
- b. Take CSC 1253 and CSC 1254. CSC 1253 and CSC 1254 is the standard sequence in Computer Science.
- c. Take EXST 3201 in the spring of your sophomore year. This course should include a 1-hour R lab. EXST 2201 is the prerequisite and may be taken in the freshman year or fall of the sophomore year.
- d. Take a commercial course like the The Infinite Actuary's Technical Skill Course: Technical Foundations. For \$85 (as of 2026), it will cover Excel, VBA, SQL, and an introduction to predictive analytics software.

4. Do *not* take MATH 4020 for your capstone requirement.

Satisfy your capstone in one of two ways.

- a. Take an EXST course that includes a project and qualifies as a capstone, e.g., EXST 4087. Along with EXST 4142 and your required courses, you will then qualify for a Minor in Applied Statistics from the Department of Experimental Statistics.
- b. Obtain an internship for the summer after your junior year. Use the internship as your capstone course with MATH 4999. See the information at:
<https://www.math.lsu.edu/~smolinsk/Actuarial%20capstone%20credit.pdf>.
While having done an internship is important for job seeking, it is not important that you do it for academic credit.

5. ECON 2030, ACCT 2001 (or ACCT 2002), FIN 3716 (or FIN 3715), and MATH 4056 are part of the credentialing process by the Society of Actuaries (SOA) called *Validation through Educational Experience* (VEE). You must receive a B- or better in each italicized class below to receive VEE credit from the SOA. The VEE requirements have prerequisites outside of mathematics and are met at LSU in the following sequences:

- *ECON 2030 or both ECON 2000 and ECON 2010 or both ECON 2001 and ECON 2011*
- *ACCT 2001 (or ACCT 2002) and FIN 3716 (or FIN 3715)*
- *MATH 4056*

You should complete them before you graduate, but you do not have to finish them early in your program. The economics and accounting courses are prerequisites for the finance course, so you must take them first.

6. If you follow the recommended program, then you will have 18-21 hours of free electives in your 120-hour program. You can use them to take courses that interest you, improve your credentials, or improve your knowledge. Here are some suggestions.

- ✓ Highly recommended:
 - EXST 4142 Introduction to R and Statistical Data Mining (preparation for actuarial exam Exam SRM).
- ✓ Recommended:
 - MATH 4040, 4041, 4045, 4046. Two are required but taking three of the four is recommended. They cover the material for three exams, and two of the three exams are required.
 - An introduction to analytics:
Take either CSC 3102 and CSC 3730 or CSC 2730. They require two semesters of CSC first.
 - MATH 4058 Elementary Stochastic Processes.

If you wish to do some independent study for exam preparation, then you may take a MATH 4999, but it must be arranged with the instructor in advance and approved by an advisor as fitting in your schedule.

- ✓ Get a minor in computer science: CSC 1253, CSC 1254, CSC 3102, and CSC 3730 are already recommended courses. The computer science department will upon your request allow you to substitute MATH 2020 for CSC 2259. You will then only need the additional 6 hours of CSC 3501 and either CSC 4101 or CSC 4103.
- ✓ Get a minor in applied statistics: You should already take MATH 3355, MATH 4056, EXST 2201, EXST 3201, and EXST 4142. You will then only need to take one of EXST 4025, EXST 4087, or EXST 4151 to get a minor in applied statistics. If you cannot obtain an internship for your capstone requirement, then take note that one of these courses may serve as your capstone requirement (see Item 3).
- ✓ Get a minor in business administration: You should already take ACCT 2001, ECON 2030, and FIN 3715 or FIN 3716. You will need the additional nine hours of ISDS 1100, MGT 3200, and MKT 3401.

7. Participate in the Actuarial Student Association, which is the student professional club. It is your connection to students who have found internships and passed exams and a chance to meet professionals (see the club's website: www.math.lsu.edu/asa).

8. Complete an internship. Completing an internship will give you experience beyond school, strengthen your credentials, and may be used to fulfill your capstone requirement.

You will have to apply for internships, and they are competitive. Interviewing and hiring for summer internships begin in the fall. To be prepared for applying, it is best to have one exam passed, some knowledge of programming, a prepared and reviewed resume, and some interview preparation.

- a. You would like to have at least one passed exam before beginning your junior year.
- b. You may obtain some programming experience in several ways. See Highly Recommended in Item 3.
- c. Attend the actuarial club (Actuarial Student Association) for guidance about internships, resumes, and interviewing.

9. Group projects are worthwhile items for a resume and for a discussion point in an interview. Some ways these may be obtained are:

- EXST 4142
- EXST 4087
- Summer Internship
- Math 4020

10. Communication skills are important in working as an actuary and obtaining a job as an actuary. Several courses in Communication Studies may be taken to fulfill your general education requirements.

Humanities general education courses:

CMST 1061 Fundamentals of Communication
CMST 2040 Introduction to Performing Literature
CMST 2060 Public Speaking
CMST 2063 Argumentation and Debate

Social science general education course:

CMST 2010 Interpersonal Communication

Sample programs below based on the 2026-2027 general catalog.

Students on older catalogs may use these sample programs as a guide but need to work with their academic advisor to fulfill the catalog requirements under which they enrolled or may switch to the 2026-2027 catalog. Three samples are given below. *All sample programs below include both independent study for Pre-Actuarial Foundations Module for the pre-actuarial foundations micro-credential and a minor in Applied Statistics.*

1. Program covering 5 exams, VEE requirements, Pre-Actuarial Foundations Module for pre-actuarial foundations micro-credential, an applied statistics minor, and an introduction to analytics in CSC.
2. Program including 4 exams, VEE requirements, Pre-Actuarial Foundations Module for pre-actuarial foundations micro-credential, a computer science minor, an applied statistics minor, and an introduction to analytics in CSC.
3. Basic program covering 3 exams, independent study exam prep, VEE requirements, Pre-Actuarial Foundations Module for pre-actuarial foundations micro-credential, and an applied statistics minor. This program is less intensive than 1 and 2.

Notes:

* denotes courses that satisfy an SOA VEE requirement.

** denotes courses that prepare for an SOA exam.

*** denotes work outside of class.

Math 4999 is used for internship credit and independent exam study. It is limited to 9 hours total.

**1. Program including preparation for 5 exams
and an applied statistics minor**

Semester 1 (14 or 15 hours)

MATH 1550 (5)

Free elective (3) CSC 1253

ENGL 1001 English Composition (3)

General Education - Natural Science sequence (Biological or Physical Science) part 1 (3)

Natural Sciences Lab in same course sequence (0-1)

Semester 2 (15 or 14 hours)

MATH 1552 (4)

Free elective (3) CSC 1254

MATH 2020 (3)
General Education - Natural Science sequence (Biological or Physical Science) part 2 (3)
Natural Sciences Lab in same course sequence (2-1)

Semester 3 (15 hours)

MATH 2057 (3)
MATH 3050^{2,**} (5)
EXST 2201 (4)
ENGL 2000 English Composition or approved HNRS courses (3)

Winter break

Take EXAM FM^{***}

Semester 4 (16 hours)

MATH 3355^{**} (3)
MATH 2085 (3)
ACCT 2001^{*} (3)
ECON 2030^{*} (3) fulfills a General Education 2000-level social science requirement
EXST 3201 (4)

Summer break

Take EXAM P^{***}

Semester 5 (16 hours)

Search for internships^{***}
Visit Olinde Career Center, prepare resume^{***}
MATH 4056^{*} (4)
MATH 4040^{**} or MATH 4045^{**} (3)
FIN 3716 or FIN 3715^{*} (3)
Free elective (3) If you have not passed EXAM P and EXAM FM then use this elective for independent study exam preparation - Math 4999
General Education course – Arts (3)

Semester 6 (15 hours)

MATH 4041^{**} or MATH 4046^{**} (3)
General Education - Natural Sciences (Alternate Science) (3)
Free elective (3) CSC 2730
Free elective (3) Independent study for micro-credential - Math 4999
General Education course – Social Sciences – perhaps CMST 2010 (3)

Summer break

² A student only has to meet the admission requirements of the College of Science to enroll in a 3000-level course: Earned 24 semester hours; have a 2.0 gpa on both LSU and cumulative averages, and have passed ENGL 1001, all mathematics courses, and all science courses with a grade of “C-” or better.

*Do summer internship****
*Take EXAM ASTAM or EXAM ALTAM****

Semester 7 (14 hours)

*Begin job search****

Free elective (3) EXST 4142**

Math 2000-level or above (3) MATH 4040** or MATH 4045**

Foreign Language Course (4)

Capstone for internship MATH 4999 or MATH 4997 or EXST 4087 or EXST 4025 or
MATH 4020 (3)

Free elective (1)

Winter break

*Take EXAM SRM****

Semester 8 (15 hours)

Free elective (3) - EXST course if needed for Applied Statistics minor

Free elective (6)

General Education course - Humanities (English/Honors 2000-level) (3)

General Education course – Humanities (3) – perhaps one of CMST 1061, 2040, 2060, or
2063

Summer

*Take EXAM FAM****

**2. Program with preparation for 4 exams and both a
computer science minor and an applied statistics minor**

Semester 1 (14 or 15 hours)

MATH 1550 (5)

Free elective (3) CSC 1253

ENGL 1001 English Composition (3)

General Education - Natural Science sequence (Biological or Physical Science) part 1(3)

Natural Sciences Lab in same course sequence (0-1)

Semester 2 (15 or 14 hours)

MATH 1552 (4)

Free elective (3) CSC 1254

MATH 2020 (3) (request substitution for CSC 2259 from computer science department)

General Education - Natural Science sequence (Biological or Physical Science) part 2 (3)

Natural Sciences Lab in same course sequence (2-1)

Semester 3 (15 hours)

MATH 2057 (3)

MATH 3050^{3,**} (5)
EXST 2201 (4)
ENGL 2000 English Composition or approved HNRS courses (3)

Winter break
Take EXAM FM^{***}

Semester 4 (16 hours)
MATH 3355^{**} (3)
MATH 2085 (3)
ACCT 2001^{*} (3)
ECON 2030^{*} (3) (fulfills a General Education 2000-level social science requirement)
EXST 3201 (4)

Summer break
Take EXAM P^{***}

Semester 5 (16 hours)
Search for internships^{***}
Visit Olinde Career Center, prepare resume^{***}
MATH 4040^{**} or MATH 4045^{**} (3)
MATH 4056^{*} (4)
FIN 3716 or FIN 3715^{*} (3)
Free elective (3) CSC 3102
General Education course – Arts (3)

Semester 6 (15 hours)
MATH 4041^{**} or MATH 4046^{**} (3)
General Education - Natural Sciences (Alternate Science) (3)
Free elective (3) CSC 3730
Free elective (3) Independent study for micro-credential - Math 4999
General Education course – Social Sciences (3) – perhaps CMST 2010

Summer break
Take EXAM ASTAM or EXAM ALTAM^{***}
Do summer internship^{***}

Semester 7 (16 hours)
Begin job search^{***}
Free elective (3) EXST 4142^{**}
Free elective (3) - EXST course if needed for Applied Statistics minor

³ A student only has to meet the admission requirements of the College of Science to enroll in a 3000-level course: Earned 24 semester hours; have a 2.0 gpa on both LSU and cumulative averages, and have passed ENGL 1001, all mathematics courses, and all science courses with a grade of “C-” or better.

Foreign Language Course (4)
Capstone (3) for internship MATH 4999 or MATH 4997 or EXST 4087 or EXST 4025
or MATH 4020
Free elective (3) CSC 3501

Winter break
*Take EXAM SRM ****

Semester 8 (13 hours)
Math 2000-level or above (3) - MATH 4058
General Education course - Humanities (English/Honors 2000-level) (3)
General Education course – Humanities (3) – perhaps one of CMST 1061, 2040, 2060, or 2063
Free elective (3) CSC 4101 or 4103
Free elective (1)

3. Basic program covering 3 exams and an applied statistics minor

Semester 1 (14 or 15 hours)
MATH 1550 (5)
Free elective (3) ISDS 1100 (3)
ENGL 1001 English Composition (3)
General Education - Natural Science sequence (Biological or Physical Science) part 1 (3)
Natural Sciences Lab in same course sequence (0-1)

Semester 2 (16 or 15 hours)
MATH 1552 (4)
EXST 2201 (4)
MATH 2020 (3)
General Education - Natural Science sequence (Biological or Physical Science) part 2 (3)
Natural Sciences Lab in same course sequence (2-1)

Semester 3 (14 hours)
MATH 2057 (3)
MATH 3050^{4,**} (5)
Free elective (3)
ENGL 2000 English Composition or approved HNRS courses (3)

Semester 4 (15 hours)
MATH 3355^{**} (3)
Free elective (2) Independent study to prepare for Exam FM Math 4999

⁴ A student only has to meet the admission requirements of the College of Science to enroll in a 3000-level course: Earned 24 semester hours; have a 2.0 gpa on both LSU and cumulative averages, and have passed ENGL 1001, all mathematics courses, and all science courses with a grade of “C-” or better.

ACCT 2001* (3)
ECON 2030* (3) (fulfills a General Education 2000-level social science requirement)
EXST 3201 (4)

Summer break
*Take EXAM FM****

Semester 5 (15 hours)
*Search for internships****
*Visit Olinde Career Center, prepare resume****
Free elective (2) Independent study to prepare for Exam P Math 4999
MATH 4056* (4)
FIN 3716 or FIN 3715* (3)
Free elective (3)
General Education course – Arts (3)

Winter break
*Take EXAM P****

Semester 6 (15 hours)
Free elective (3) EXST 4142**
General Education - Natural Sciences (Alternate Science) (3)
Free elective (3)
MATH 2085 (3)
General Education course – Social Sciences (3) – perhaps CMST 2010

Summer break
*Take EXAM SRM now or delay for a semester of further preparation ****
*Do summer internship****

Semester 7 (15 hours)
*Begin job search****
Free elective (2) Independent study for Exam SRM (if not yet passed) Math 4999
MATH 4040** or MATH 4045** (3)
Foreign Language Course (4)
Capstone (3) – EXST 4087 for Applied Statistics minor
Free elective (3) Independent study for micro-credential - Math 4999

Winter break
*Take EXAM SRM if not yet passed****

Semester 8 (16 hours)
MATH 4041** or MATH 4046** (3)
Free elective (4)
General Education course – Humanities (English/Honors 2000-level) (3)

General Education course – Humanities (3) – perhaps one of CMST 1061, 2040, 2060, or 2063

Math 2000-level or above (3) – Math 4058