

Risk Management (R M) Actuarial Science Major (ACTSC) Sample Schedule with Stat Minor, SOA/CAS Exams & VEE

(for entry into Major at end of 3rd semester - revised 9/15/2019)

For students with 4/5 in AP Calc, good Math scores (e.g., 670 in SAT or 28 in ACT), & good GPA (3.5 out of 4 in HS & 3.50 in 1st semester)¹

1 st Semester		2 nd Semester	
PSU 006 – First Year Seminar	1	§ MGMT 301 – Management	3
§ ENGL 015 or 030 (GWS) – English Composition	3	§ SCM 200 (GQ) or STAT 200 – Statistics	4
§ MATH 141 (GQ) – Calc II - take 140 in summer if not waived ¹	4	§ MATH 231 - Calculus III	2
§ ECON 102 (GS) – Microeconomics VEE (B- or better or AP 4/5)	3	§ ACCTG 211 – Accounting VEE	4
† Foreign Lang 001	4	† Foreign Language 002	4
Sign up for Actuarial Club listserv asap Semester Credits	15	Semester Credits	17
3 rd Semester		4 th Semester	
STAT 414– Probability Theory P Exam in Jan	3	R M 410 – Financial Math for Actuaries FM Exam in June	3
§ FIN 301 – Finance VEE	3	ECON 104 (GS) – Macroeconomics VEE	3
§ MKTG 301 – Marketing	3	CAS 100 (GWS) – Speech Communication	3
† Foreign Language 003	4	HPA 057 - Consumer Choices in Health Care (GHA)	3
RM 214 - Review of Probability	1.5	STAT 415 - Mathematical Stat VEE, helps LTAM/CAS MAS-I	3
Math 220 – Matrices	2	STAT 484 - Intro to R (or STAT 297 - 3 credits)	1
Attend Resume Workshop & Career Fair Semester Credits	16.5	Mock Interviews with Mentors Semester Credits	16
5 th Semester		6 th Semester	
RM 415 - Financial Models for Actuaries IFM exam in Nov	3	R M 411 - Actuarial Mathematics I for LTAM/CAS MAS-I	3
R M 320W - Risk Management & Insurance	3	General Education Natural Sciences (GH/GS/GA)	3
B A 342 – Business Ethics	3	Gen Education (GA/GH/GS)	3
General Education (GN)	3	ENGL 202D – Business Writing	3
MIS 204 - Business Information Systems	3	B LAW 341 – Business Law I: Contracts, Liab & Property	3
STAT 462 - Regression Analysis for SRM/CAS MAS-I	3	STAT 463–Time Series for SRM & MAS-I exam	3
STAT 485 (1 credit) - Intermediate R		STAT 416-Stochastic Processes take MAS-I in July	
Semester Credits	18	Semester Credits	18
7 th Semester		8 th Semester	
R M 412 – Actuarial Mathematics II LTAM Exam in October	3	R M 420 – Prop & Casualty Ins STAM in June or MAS-II in July	3
R M 430 – Life and Health Insurance	3	STAT 483–SAS (or 480/481/482 sequentially) helps get job	3
B A 411 – Analyzing Business and Industry	3	3 General Education (GA/GH/GS)	9
General Education Natural Science (GN)	3	General Education Natural Science (GN)	3
STAT 380 (or 557) - Data Science for SRM in January	3		
STAT 440 (Computational Stat) for STAM + SRM. & PA Exams in Jan	3		
Semester Credits	18	Semester Credits	18

§ Entrance-to-Major courses. **You need ETM before taking RM 410, so take FIN 301 before 4th semester!** You also need a 3.20 Cum and 40 credits.

† Students must complete 12th credit level in a foreign language. Credits vary based on skill level.

Courses in **Bold** require a grade of "C" or higher.

Courses in *Italics* satisfy general education and degree requirements.

Stat minor: STAT 414/415 & 10 credits of 400 level courses. STAT 557 or 380 helps SRM exam. STAT 380 has prereq = STAT 184 or 485

Actuarial Science students need to be very good in Mathematics (particularly Calculus and Sums of Geometric Series) to be successful in getting an actuarial degree. Actuarial students often get a 5 on the AP Calculus Exam and can skip MATH 140 and go right into MATH 141. Use this [Math Department advising website](#) to determine whether that makes sense for you. It will help you take the actuarial exam courses sooner. **This sample schedule helps you pass 3 actuarial exams by your Junior year, which is valuable for getting an internship and a full-time job. However, there is a risk that your ETM & Overall GPAs could go below 3.20, making it impossible to pursue a Smear Major. Please make your decision carefully, taking into account your abilities & commitment to this rigorous plan. If you find that your GPA could go below 3.20, you can late drop a course, but then actuarial science may not be right for you, in which case you should consider other degrees.**

- ACCTG 211 can be taken at most Commonwealth Campuses, or via web in the summer from anywhere. Smear students can only take the UP web version, not the World Campus version.
- To catch up, STAT 414 can be taken concurrently with MATH 231 if you also take RM 214 concurrently.
- Take RM 214 with STAT 414, as it helps you pass STAT 414 and the Probability Theory exam given by the SOA.
- RM 320W, 412, 430 are offered in the fall semester only. RM 411, 401, 420 are offered in the spring semester only.
- RM 401 – Fundamentals of Private Pensions can be taken instead of RM 420

¹ Has it been more than a year since you took calculus? Are you dependent on teachers to learn math? Do you have trouble reading math textbooks and learning on your own? Do you memorize formulas as opposed to understanding concepts? Did your high school not adequately prepare you for a college course in math? Do you need an A to get your GPA above 3.20? If you answered “yes” to any of these questions, consider coming early to take MATH 140 (Calc I) in the Summer semester.

- STAT 483 (SAS) can be taken instead of RM 415
- Sign up for the Actuarial Science [listserv](#) asap. It provides lots of great information on the Actuarial Science Career Fair, Employer Information Sessions, the Actuarial Exams, how to get internships and jobs, and Actuarial Science club meetings.
- Students pursuing an actuarial career should take VEE courses in <http://www.soa.org/education/exam-req/edu-asa-req.aspx> before graduation. Thus, take STAT 415 even though not required for graduation. **Students must get a B- or better in all VEE courses (or have AP 4/5).**
- Take STAT 462/463, as they are needed for the SOA's SRM exam, CAS's MAS-1 exam, and help you learn R, which employers want.
- Since you are taking so many STAT courses, get a STAT minor, as you only need STAT 480 (1 credit in SAS) and STAT 440 to get it. STAT 440 helps with Exam PA. MATH 220 is a prerequisite for STAT 440 and it helps with Efficient Frontiers in RM 415 (MFE Exam) and Markov Chains in RM 412 (LTAM Exam). Knowing SAS well helps you get a job, so taking STAT 483 (3 credits in SAS) is better than STAT 480. Employers are looking for students who know [Excel and VBA, SAS, R, or Python](#) well.
- Students wanting jobs at P&C Insurers should take STAT 416, to help them pass CAS's MAS-1 exam.
- If you need to take STAT 414 from the World Campus and can't register for it, provide Statistics Professor James L Rosenberger JLR@stat.psu.edu your GPA, Calculus grades, and Student ID number, so that he can enroll you (if your grades are good enough).
- We encourage students to Study Abroad in the winter and summer breaks. It is important to do an internship in the summer after your junior year, as employers generally want Full-Time candidates to have had an internship.

Also see all the other footnotes in your official sample schedule.

Math Major – Actuarial Option with Stat Minor

Yr	Fall	Spring
1 st	<p>MATH 141§* (Calc II) – take Calc in summer if don't place out</p> <p>STAT 200 (Statistics)</p> <p>ENGL 015/030 (Rhetoric and Composition)</p> <p>ECON 102 (Micro) VEE (B- or better or AP 4/5)</p> <p>PSU 016 (First-Year Seminar)</p>	<p>MATH 230* (Calc III)</p> <p>MATH 220 (Matrices) helps 412/415/LTAM</p> <p>ECON 104 (Macro) VEE</p> <p>ACCTG 211 (FIN 301 Pre-Req) VEE</p> <p>CAS 100 (Effective Speech)</p>
2 nd	<p>STAT 414* (Probability Theory)</p> <p>RM 214 Excel; P Exam in Jan</p> <p>MATH 311W* (Discrete Math)</p> <p>FIN 301 (Corp Finance) VEE</p> <p>CMPSC 121 (Structured Computer Programming)</p>	<p>RM 410* (Financial Math) Excel; FM Exam in June</p> <p>MATH 312* (Real Analysis)</p> <p>MATH 251 (Ordinary & Partial Differential Equations)</p> <p>STAT 415# (Mathematical Statistics) helps LTAM/MAS-I Exam VEE</p> <p>STAT 380 (Data Science - Statistical Reasoning & Computation) for SRM</p>
3 rd	<p>RM 415 (Derivatives Markets) VBA; IFM in late November</p> <p>RM 302 (Risk and Insurance)</p> <p>MATH 484 (Linear Programming)</p> <p>STAT 462# (Regression Analysis) R for SRM/MAS-I Exam</p>	<p>RM 411* (Life Contingencies) VBA; for LTAM/MAS-I exam</p> <p>STAT 463# (Applied Time Series) R SRM in May/for MAS-I Exam</p> <p>STAT 416# (Stochastic processes) Take MAS-I in July</p> <p>MATH 451 (Numerical Computation) or MATH 486 (Game Theory)</p>
4 th	<p>RM 412* (Life Contingencies) LTAM Exam in late October</p> <p>STAT 440 (Computational Statistics) PA Exam in Dec</p> <p>IE 425 (Operations Research)</p> <p>ENGL 202C (Business Writing)</p>	<p>RM 420* (P&C/Health)</p> <p>Take STAM in June or CAS MAS-II Exam in July</p> <p>STAT 483# (better SAS class)</p> <p>HPA 057 (good GHA course) Add Gen Ed's where appropriate</p>

*C or better required.
 If C's consider other degree
 # for Stat minor
 § To Enter Major

Stat Major – Actuarial Option

Yr	Fall	Spring
1 st	<p>MATH 141§* (Calc II) – take Calc in summer if don't place out</p> <p>STAT 200 (Statistics)</p> <p>ECON 102 (Micro) VEE (B- or better or AP 4/5)</p> <p>Stat 184 (Intro to R)</p> <p>PSU 016 (First-Year Seminar)</p>	<p>MATH 230* (Calc III)</p> <p>ACCTG 211 (FIN 301 Pre-Req) VEE</p> <p>ECON 104 (Macro) VEE</p> <p>ENGL 015/030 (Rhetoric and Composition)</p>
		<p>*C or better required. If C's consider other degree § To Enter Major</p>
2 nd	<p>STAT 414* (Probability Theory)</p> <p>RM 214 Excel; P Exam in Jan</p> <p>FIN 301 (Corp Finance) VEE</p> <p>CMPSC 121 (Structured Computer Programming)</p> <p>CAS 100 (Effective Speech)</p>	<p>RM 410* (Financial Math) Excel; FM Exam in June</p> <p>MATH 220 (Matrices) helps in 412/415/LTAM</p> <p>STAT 461 (Analysis of Variance)</p> <p>ENGL 202C</p> <p>STAT 380 (Data Science - Statistical Reasoning & Computation) for SRM</p>
3 rd	<p>RM 415 (Derivatives Markets) VBA; IFM in late November</p> <p>RM 302 (Risk and Insurance)</p> <p>STAT 415 (Math Stat) helps on LTAM/MAS-I VEE</p> <p>STAT 462 (Regression Analysis) R for SRM/CAS MAS-I Exam</p>	<p>RM 411* (Life Contingencies) VBA for LTAM/MAS-I exam</p> <p>STAT 463 (Applied Time Series) R SRM in May/for MAS-I Exam</p> <p>STAT 416 (Stochastic Modeling) CAS MAS-I Exam in July</p> <p>HPA 057 (good GHA course)</p>
4 th	<p>RM 412* (Life Contingencies) LTAM Exam in late October</p> <p>STAT 483 (better SAS class)</p> <p>STAT 464 or 466 (Nonparametric Statistics or Survey Sampling)</p> <p>STAT 440 (Computational Statistics) PA Exam in Dec</p>	<p>RM 420* (P&C/Health) can sub for 400-level Stat elective</p> <p>Take STAM Exam in June or CAS MAS-II Exam in July</p> <p>STAT 470W (Statistical Problem Solving)</p> <p>Also add Gen Ed's where appropriate</p>

Scheduling Notes

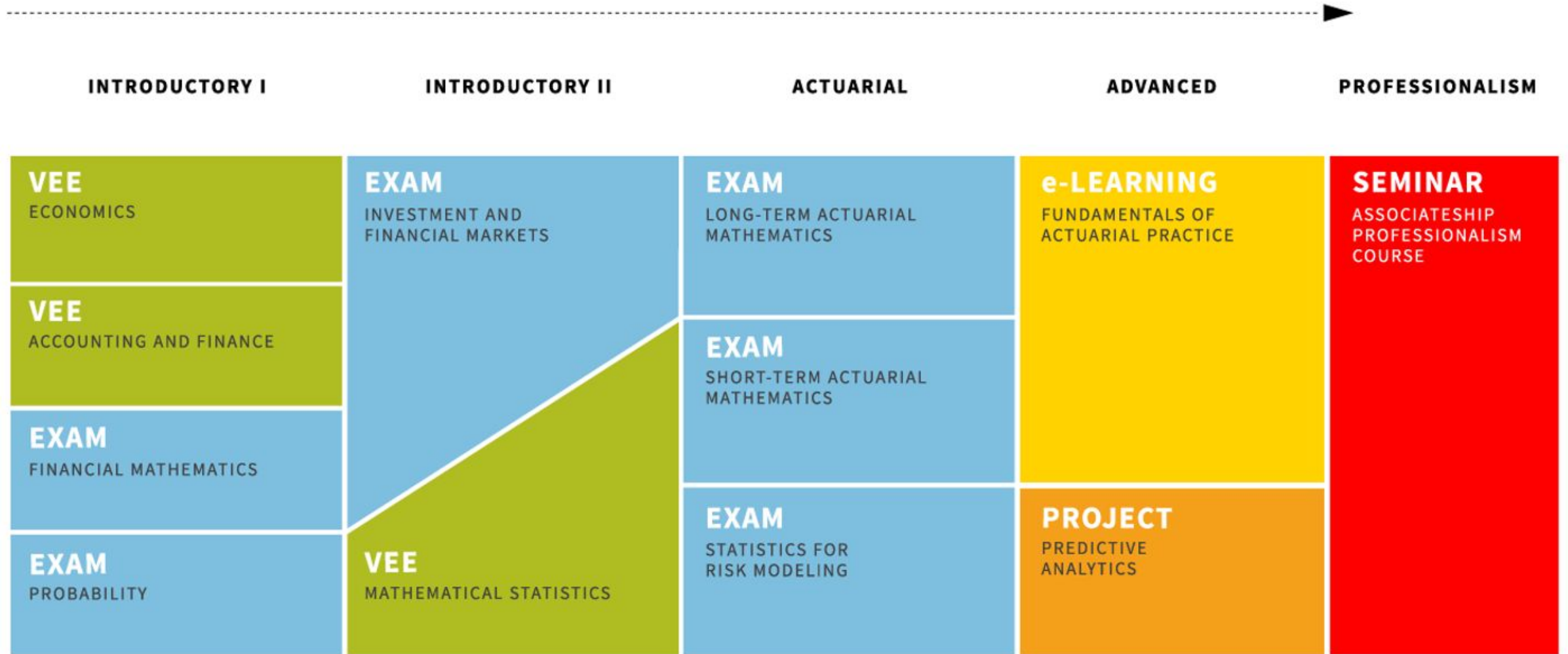
Smeal Students:

- If you pursue this plan, there is a risk that your ETM & Overall GPA could be hurt beyond repair, making it impossible to pursue other Smeal Majors. Please make your decision carefully, taking into account your abilities & commitment to this rigorous plan.
- **Students who meet ETM requirements (e.g., 44 PSU credits including FIN 301) can enter Act Sci Option & schedule RM 410 in fourth semester (if passed STAT 414 with C or better).**
- Take ACCTG 211 and SCM 200 in the 2nd semester so you can take FIN 301 in 3rd semester.

All Students:

- If 5 on AP exam, place out of **MATH 140** (so you can take **Math 230** , **STAT 414**, & **RM 415** as above).
- If 4, see [Math Dept Advising website](#) on whether to place out.
- If behind, you must take Math 231 (230 if Eberly) in summer after Frosh year to catch up.
- **Eberly Students must meet ETM requirements (Calc I and II) to enter major and schedule RM 410 in fourth semester (if passed STAT 414 with C or better)**
- P&C and Health insurers tell us that **STAT 483** and other Data Analytics courses help you get a job
- Check with advisor periodically to make sure you are on track to graduate on time

Path to ASA in Society of Actuaries (SOA)



Path to FCAS

