Actuarial Science, B.S.
College of Arts and Sciences (CAS) and the School of Business Administration (SBA)
Department of Mathematics and Statistics and the Department of Economics
Catalog Year: 2024

This is a sample schedule of all general education, CAS Exploratory and major requirements for this degree in a 4-year plan. Courses in bold are designated as critical and may be prerequisites to subsequent major courses or may affect timeline for graduation due to specific semester offering. Please see the notes column for further clarification.
The below plan is based on SAT Writing 410-610 and SAT Math 540-650 (new), or AP/IB/CLEP equivalents to place into MTH 1554.

Semester One (16 credit hours) - Course Subject and Title	Credits	Minimum Grade	Course Type	Prerequisites	Notes
MTH 1554 - Calculus I	4	C	Multiple	MTH 1441(or MTH 1331/1332*) minimum grade (C) or placement	Prerequisite to subsequent major courses; Major and GE - FR course. *MTH 1331/1332 two semester sequence recommended for SAT 540-560, ACT 22-23. MTH 1441 recommended for SAT 570-650, ACT 24-27. See Math Placement Info at oakland.edu/math/undergrad/placement
ECN 2010 - Principles of Microeconomics	4	C	Multiple	High school algebra	Major requirement - also satisfies GE - SS
WRT 1050 - Composition or WRT 1060	4	C	Elective	WRT 1020 with a grade of C or higher; placement	Prerequisite to subsequent Writing Foundation General Education course
SBC 1990 - ACHIEVE I	0	Passing	Major	No prerequisite	Prerequisite to subsequent major courses
General Education Course	4	Passing	General Education	Prerequisite varies with choice	http://catalog.oakland.edu/

Semester Two (16 credit hours) - Course Subject and Title	Credits	Minimum Grade	Course Type	Prerequisites	Notes
MTH 1555 - Calculus II	4	C	Major	MTH 1554 minimum grade of (C)	Prerequisite to subsequent major courses.
ECN 2020 - Principles of Global Macroeconomics	4	C	Multiple	High school algebra	Major requirement - also satisfies GE - GP
WRT 1060 - Composition II or STA 2226	4	C	General Education	WRT 1050 with grade of C or higher; placement STA prerequisite is MTH 1554	Prerequisite to subsequent Writing Intensive courses
ACC 2000 - Introductory Financial Accounting	4	C	Major	MTH 1554 prior to or concurrent with ACC 2000 or [MIS	Prerequisite to subsequent major courses
SBC 2990 - ACHIEVE II	0	Passing	Major	SBC 1990	Prerequisite to subsequent major courses.

Semester Three (15 credit hours) - Course Subject and Title	Credits	Minimum Grade	Course Type	Prerequisites	Notes
FIN 3550 - Finance for Actuarial Science or (FIN 3220 and FIN 3720)	4	C	Major	ACC 2000, FIN 3220 & FIN 3720 require many prerequisites	FIN 3550 suggested. Students under a previous catalog who have taken FIN 3550 may use this course to substitute for FIN 3220.
STA 2226 - Applied Probability and Statistics or MIS 4460	4	C	Major	MTH 1222 or MTH 1554 minimum grade of (C)	Prerequisite to subsequent major courses
ECN 3030 - Managerial Economics or ECN 3500 Insurance and Risk Management	3	C	Major	ECN 2010 and ECN 2000 or ECN 2020 and MTH 1222 or MTH 1554 minimum grade of (C)	Students on a previous catalog who have taken ECN 3810 may use this course as a substitute for ECN 3030
MTH 2554 - Multivariable Calculus	4	C	Major	MTH 1555 minimum grade of (C)	Prerequisite to subsequent major courses. Or permission of the chief undergraduate faculty adviser.

Semester Four (13 credit hours) - Course Subject and Title	Credits	Minimum Grade	Course Type	Prerequisites	Notes
MTH 2775 - Linear Algebra	4	C	Major	MTH 1555 minimum grade of (C)	Prerequisite to subsequent major courses.
ACS 4550 - Financial Mathematics	3	C	Major	MTH 2554 and (FIN 3720 or FIN 3550) minimum grade of (C) in each	Satisfies capstone requirement.
ECN 3210 Financial Markets and Economy	3	C	Major	Prerequisite varies with choice	ECN 3210 - Financial Markets and Economy is suggested. Offered winter and summer.
MIS 4460 - Business Analytics or MIS 4470	3	C	Major	QMM 2410 or EGR 2600 or STA 2221 or STA 2226 minimum grade of (C)	No note.
ACS 3990 - ACHIEVE 3 Actuarial Sciences	0	Passing	Major	SBC 1990 and SBC 2990	Generally offered during the fall semester.
COM 2000 Public Speaking or COM 2403 Group Dynamics and Communication	4	C	Major	No prerequisite	No note.
TAKE FM EXAM IN AUGUST					

Semester Five (16 credit hours) - Course Subject and Title	Credits	Minimum Grade	Course Type	Prerequisites	Notes
STA 4113 - Introduction to Mathematical Statistics	4	C	Major	STA 2226, MTH 2554, and MTH 2775 with minimum grade of (C) in each	Offered fall only.
ECN 3030 - Managerial Economics or ECN 3500 Insurance and Risk Management	3	C	Elective	ECN 2010 and ECN 2020	MIS 4470 - Practical Computing for Data Analytics is suggested.
EGR 1400 - Computer Problem Solving in Engineering and Computer Science	4	C	Major	MTH 1554 or equivalent	No note.
ACS 3000 - Foundations of Probability and Calculus (If necessary)	1	C	Major	MTH 2554 and STA 2226 with minimum grade of (C) in each	Required unless a student has earned a B+ or higher in MTH 2554. ECN 4010 is an alternative (not required) 1 credit course.
WRT 3082 - Business Writing	4	C	Multiple	WRT 1060	Satisfies GE - KA.
Take only 12 or 13 credits while taking STA 4113 (P Exam) and ACS 4550 (FM Exam)					

Semester Six (14 credit hours) - Course Subject and Title	Credits	Minimum Grade	Course Type	Prerequisites	Notes
STA 4114, QMM 2410, or STA 4330	4	C	Major	STA 4113 (grade of C or better)	STA 4114 Intro to Mathematical Statistics II suggested. (Offered winter only). Satisfies VEE in statistics. Students under a previous catalog who have taken ECN 4060, STA 4228, or STA 4330 can substitute these for QMM 2410.
MIS 3140 - Business Database Systems	3	C	Major	EGR 1400, other prerequisites are waived	Students under a previous catalog who have taken MIS 3130 may use this course as a substitute for MIS 3140.
MIS 4470 (needed for the PA exam) or Elective	3	C	Elective	MIS 4460 or EGR 1400	"Elective" may need to include university requirements of G.E. Integration or credits at the 3000-4000 level. MIS 4470 counts towards a Business Analytics minor.
Elective	4	C	Elective	Prerequisite varies with choice	http://catalog.oakland.edu/
TAKE P EXAM IN JUNE					

Semester Seven (16 credit hours) - Course Subject and Title	Credits	Minimum Grade	Course Type	Prerequisites	Notes
STA 4002 - Applied Linear Models I or ECN 4050 Econometrics (3 credits)	4	C	Major	STA 2226, and MTH 2775 with minimum grade of (C) in	Also satisfies WIM. STA 4002 (Offered Fall only). Alternate option: ECN 4050 (Offered Fall only).
APM 2559, STA 4225, or APM 4334	4	C	Major	Prerequisite varies with choice.	Choose 1 of the following in coordination with faculty advisor: APM 2559 - Intro Differential Equations (Offered Fall only), STA 4225 - Stochastic Processes I (Offered Winter Even Year), APM 4334 - Applied Num Mods: Matrix Methods (Offered Winter Only)
ACS 4660 - Financial Economics or FIN 4250 - Financial Derivatives	4	Passing	General Education	Prerequisite varies with choice	Choose 1 of the following in coordination with faculty advisor: ACS 4660 (Offered Fall only), FIN 4250 (Offered Winter only)
General Education Course	4	Passing	General Education	Prerequisite varies with choice	http://catalog.oakland.edu/

Semester Eight (16 credit hours) - Course Subject and Title	Credits	Minimum Grade	Course Type	Prerequisites	Notes
General Education Course	4	Passing	General Education	Prerequisite varies with choice	http://catalog.oakland.edu/
General Education Course	4	Passing	General Education	Prerequisite varies with choice	http://catalog.oakland.edu/
General Education Course	4	Passing	General Education	Prerequisite varies with choice	http://catalog.oakland.edu/
Elective	4	C	Elective	Prerequisite varies with choice	"Elective" may need to include university requirements of G.E. Integration or credits at the 3000-4000 level

Sample Schedule Notes:
Earn a minimum grade of C in all courses applied to the major including cognate courses for the major.
Work with a faculty adviser about timing for exams. In general, take FM exam in June/August after semester four. P exam in June after semester six.
This major is offered jointly by the Department of Mathematics and Statistics and the Department of Economics.
Complete the requirements for a major offered by the College of Arts and Sciences with a cumulative grade-point average of at least 2.00.

CAS Exploratory Requirement
In addition to satisfying the university-wide general education requirements, all students with majors in the College of Arts and Sciences are required to complete at least three courses outside of their major rubric, for a minimum of 12 credits.
Math courses required for the ACS major will fulfill the CAS Exploratory Requirement. A math major can be added with no additional math courses because the Mathematics Department allows for more than 8 credits to count between majors and minors.
Adding a CAS minor will replace the CAS Exploratory Requirement.
Actuarial Science majors should consider adding the following minors, as the bulk of these minor's curriculum will be met by the ACS major requirements. Minors: Mathematics, Economics, Business Analytics.

Degree Requirements	Credits	Note
General Education	24	Multiple General Education course are fulfilled with courses in the Major to reach the 40 required credits
Diversity	Included	Multiple General Education and/or major courses also fulfill this area
WIM/WIGE/Capstone	Included	Multiple General Education and/or major courses also fulfill this area
CAS Exploratory Requirement	0	Met in major with ECN or MTH courses
Major	84-86	Including corequisites
Electives	14-16	
Total Credits:	124	

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This is a sample schedule of all Gen Ed, CAS Exploratory and major requirements for this degree in a 4-year plan. Courses in bold are designated as critical and may be prerequisites to subsequent major courses or may affect
timeline for graduation due to specific semester offering. Please see the notes column for further clarification.
The below plan is based on SAT Writing 410-610 and SAT Math 640-800 (old), 660-800 (new), or AP/IB/CLEP equivalents.

Semester One (16 credit hours) - Course Subject and Title	Credits	Minimum Grade	Course Type	Prerequisites	Notes
MTH 1555 - Calculus I I or MTH 2554 - Calculus III	4	C	Multiple	Calculus I minimum grade (C) or placement (AP)	MTH 1331/1332 recommended for SAT 540-560, ACT 22-23. MTH 1441 recommended for SAT 570-650, ACT 24-27. See Math Placement Info at oakland.edu/math/undergrad/placement
ECN 2010 - Principles of Microeconomics	4	C	Multiple	High school algebra	Major requirement - also satisfies GE - SS
WRT 1050 - Composition or WRT 1060	4	C	Elective	WRT 1020 with a grade of C or higher; placement	Prerequisite to subsequent Writing Foundation Gen Ed course
SBC 1990 - ACHIEVE I	0	Passing	Major	No prerequisite	Prerequisite to subsequent major courses
STA 2226 - Applied Probability and Statistics	4	C	Major	MTH 1222 or MTH 1554 minimum grade of C	Prerequisite to subsequent major courses
				Prereq var (5 needed: Arts, Western Civ, Natural Sci w/ Lab, Lit, For	http://catalog.oakland.edu/

Semester Two (16 credit hours) - Course Subject and Title	Credits	Minimum Grade	Course Type	Prerequisites	Notes
MTH 2554 - Calculus III or MTH 2775 - Linear Algebra	4	C	Major	MTH 1555 minimum grade of C	Prerequisite to subsequent major courses.
ECN 2020 - Principles of Global Macroeconomics	4	C	Multiple	High school algebra	Major requirement - also satisfies GE - GP
WRT 1060 - Composition II or STA 2226 or General Education Course	4	C	Gen Ed	WRT 1050 grade of C or higher; placement STA prereq	Prerequisite to subsequent Writing Intensive courses
ACC 2000 - Introductory Financial Accounting	4	C	Major	MTH 1554 prior to or concurrent with ACC 2000 or [MIS	Prerequisite to subsequent major courses
SBC 2990 - ACHIEVE II	0	Passing	Major	SBC 1990	Prerequisite to subsequent major courses.

Sem Three (12/13 cr hrs) - Course Subj and Title, Take 12/13 cr when taking STA 4227 (P	Credits	Min Gr	Course Type	Prerequisites	Notes
FIN 3550 or (FIN 3220 and FIN 3720)	4	C	Major	ACC 2000, FIN requires many prerequisites	FIN 3550 suggested.
STA 4227 - Introduction to Mathematical Statistics I	4	C	Major	STA 2226, MTH 2554, and MTH 2775 with minimum gra	Offered fall only.
ACS 3000 - Foundations of Probability and Calculus	1	C	Major	MTH 2554 and STA 2226 with minimum grade of (C) in	Required unless a student has earned a B+ or higher in MTH 2554. ECN 4010 is an alternative (not required) 1 credit course.
MTH 2775 - Linear Algebra or ECN 3810 Math for Econ or ECN 3500 Insur and Risk Mgt	4 or 3	C	Major	MTH 1555 minimum grade of C or ECN 2010 and (ECN	Prerequisite to subsequent major courses.
ACS 3990 - ACHIEVE 3 Actuarial Sciences	0	Passing	Major	SBC 1990 and SBC 2990	Generally offered during the fall semester.
TAKE P EXAM IN JANUARY					

Semester Four (13 credit hours) - Course Subject and Title	Credits	Minimum Grade	Course Type	Prerequisites	Notes
STA 4228, QMM 2410, or STA 4330	4	C	Major	STA 4227 (grade of C or better)	STA 4228 Intro to Mathematical Statistics II suggested. Offered winter only. Satisfies VEE in statistics. Students under a previous catalog who have taken ECN 4060, STA 4228, or STA 4330 can substitute these for QMM 2410.
ACS 4550 - Financial Mathematics	3	C	Major	STA 2554 and (FIN 3720 or FIN 3550) minimum grade	Satisfies capstone requirement.
ECN 3210 Financial Markets and Economy	3	C	Major	ECN 2010 and ECN 2020	ECN 3210 Financial Markets and Economy is suggested. Offered winter and summer.
MIS 4460 - Business Analytics	3	C	Major	QMM 2410 or EGR 2600 or STA 2221 or STA 2226 mini	No note.
TAKE FM EXAM IN JUNE					

Semester Five (14/15 credit hours) - Course Subject and Title	Credits	Minimum Grade	Course Type	Prerequisites	Notes
STA 4002 - Applied Lin Models I or ECN 4050 Econometrics	4 or 3	C	Major	STA 2226, and MTH 2775 each C min grade, ECN 3030	Also satisfies WIM. Only offered fall. Alternate option: ECN 4050 (only offered FALL)
ECN 3810 Math for Econ or ECN 3030 (Mgr Econ) or ECN 3500 Insur and Risk Mgt	3	C	Elective	ECN 2010 and ECN 2020	MIS 4470 - Practical Computing for Data Analytics is suggested.
EGR 1400 - Computer Problem Solving in Engineering and Computer Science	4	C	Major	MTH 1554 or equivalent	No note.
WRT 3082 - Business Writing	4	C	Multiple	WRT 1060	Satisfies GE - KA.

Semester Six (18 credit hours) - Course Subject and Title	Credits	Minimum Grade	Course Type	Prerequisites	Notes
MIS 3140 Business Database Systems	3	C	Major	EGR 1400, other prerequisites are waived	Students under a previous catalog who have taken MIS 3130 may use this course as a substitute for MIS 3140.
COM 2000 Public Speaking or COM 2403 Group Dynamics and Communication	4	C	Major	No prerequisite	No note.
MIS 4470 (needed for the PA exam)	3	C	Elective	MIS 4460 or EGR 1400	"Elective" may need to include university requirements of G.E. Integration or credits at the 3000-4000 level
General Education Course	4	Passing	Gen Ed	Prerequisite varies with choice.	http://catalog.oakland.edu/
APM 2559 Differential Equations or STA 4225 Statistical Process Control or Gen Ed course 2	4	C	Major/Gen Ed	Prerequisite varies with choice.	Options: APM 2559, STA 4225, APM 4334.

Semester Seven (17/18 crd hrs) - Course Subject and Title	Credits	Minimum Grade	Course Type	Prerequisites	Notes
APM 2559 Differential Equations or STA 4225 Statistical Process Control or Gen Ed course 2	4	C	Major/Gen Ed	Prerequisite varies with choice.	Options: APM 2559, STA 4225, APM 4334.
ECN 3810 Math for Econ or ECN 3030 (Mgr Econ) or ECN 3500 Insur and Risk Mgt	3	C	Elective	ECN 2010 and ECN 2020	MIS 4470 - Practical Computing for Data Analytics is suggested.
General Education Course	4	Passing	Gen Ed	Prerequisite varies with choice.	http://catalog.oakland.edu/
ECN elective	3	C	Elective	ECN 2010 and ECN 2020	Only offered fall. Not needed if student takes FIN 4250 in Winter.
Elective	3 or 4	C	Elective	Prerequisites vary	

Semester Eight (14/16 crd hrs) - Course Subject and Title	Credits	Minimum Grade	Course Type	Prerequisites	Notes
Elective	3 or 4	C	Elective	Prerequisites vary	
General Education Course	4	Passing	Gen Ed	Prerequisite varies with choice	http://catalog.oakland.edu/
General Education Course	4	Passing	Gen Ed	Prerequisite varies with choice	Only offered winter. Not needed if student takes ACS 4660 in Fall.
Elective	3 or 4	C	Elective	Prerequisites vary	

Sample Schedule Notes:
Earn a minimum grade of C in all courses applied to the major including cognate courses for the major.
Work with a faculty adviser about timing for exams. In general, take FM exam in June/August after semester four. P exam in January/March of semester six.
This major is offered jointly by the Department of Mathematics and Statistics and the Department of Economics.
SAT (old) refers to exams taken before March 2016. SAT (new) refers to exams taken March 2016 or later.
Complete the requirements for a major offered by the College of Arts and Sciences with a cumulative grade-point average of at least 2.00.

CAS Exploratory Requirement
In addition to satisfying the university-wide Gen Ed requirements, all students with majors in the College of Arts and Sciences are required to complete at least three courses outside of their major rubric, for a minimum of 12 credits.
A student may select these courses from either of the following: A single rubric of their choosing (e.g., HST) within the College of Arts and Sciences. A predefined thematic set of courses identified on the College of Arts and Sciences website.

Degree Requirements	Credits	Note
Gen Ed	24	Multiple Gen Ed course are fulfilled with courses in the Major to reach the 40 required credits. 5 additional courses needed (Arts, For Lang, at Sci w/ lab, West Civ, Lit)
Diversity	Included	Multiple Gen Ed and/or major courses also fulfill this area
WIM/WIGE/Capstone	Included	Multiple Gen Ed and/or major courses also fulfill this area
CAS Exploratory Requirement	0	Met in major with ECN or MTH courses
Major	86	Including corequisites and AP credits.
Electives	14	
Total Credits:	124	
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