

Table 1a. Requirements for B.S. in geology (Option A: Traditional geology)**Required courses**

Dept.	No.	Title	Credit	Semester
Geol	100	The Earth*	3	F/S/SS
Geol	100L	The Earth – Lab*	1	F/S
Geol	102	History of the Earth	3	S
Geol	102L	History of the Earth – Lab	1	S
Geol	302	Summer Field Studies	6	SS
Geol	311	Mineralogy and Earth Materials	5	F
Geol	356	Structural Geology	5	S
Geol	365	Igneous and Metamorphic Petrology	3	S
Geol	368	Stratigraphy and Sedimentation	4	F
Geol	479	Surficial Processes	3	F

9 credits of geology electives

Dept.	No.	Title	Credit	Semester
Geol	306	Geology Field Trip	1-2	F/S
Geol	402	Watershed Hydrology and Surf. Proc.	4	F
Geol	409	Field Methods in Hydrogeology	2	Alt. SS (06)
Geol	411	Hydrogeology	4	F
Geol	414	Applied Groundwater Flow Modeling	3	Alt. S (06)
Geol	415	Paleoclimatology	3	Alt. S (07)
Geol	419	Environmental Geochemistry	3	F
Geol	426	Stable Isotopes in the Environment	3	Alt. F (05)
Geol	434	Contaminant Hydrogeology	3	S
Geol	451	Applied & Environmental Geophysics	3	S
Geol	452	GIS for Geoscientists	4	F
Geol	454X	AutoCAD for Geoscientists	2	Alt. S (05)
Geol	456X	Introd. to Geostatistics using ArcGIS	2	Alt. S (05)
Geol	457	Exploration Seismology	3	Alt. F (06)
Geol	474	Glacial and Quaternary Geology	3	Alt. S (07)
Geol	483	Environmental Biogeochemistry	4	S

* Geol 201 may be substituted for Geol 100, 100L

Required supporting courses

Dept.	No.	Title	Credit	Semester
Math	165	Calculus I	4	F/S/SS
	166	Calculus II	4	F/S/SS
<i>OR</i>				
Math	181	Calculus and Diff. Eq. for the Life Sci.	4	F/S
	182	Calculus and Diff. Eq. for the Life Sci.	4	F/S
Chem	163	General Chemistry	4	F/S
	164	General Chemistry	3	
Chem	163L	General Chemistry Lab	1	F/S
	164L	General Chemistry Lab	1	
Phys	111	General Physics	4	F/S/SS
	112	General Physics	4	F/S/SS

Required supporting courses

Dept.	No. (credit)
	An additional 6 credits of Math, Stat, Engineering, Agronomy, and Com S, which may include but are not limited to:
Math	265(4), 266(3), 267(4), 307(3), 385(3)
Stat	101(4), 104(3)
Com S	107(3), 207(3)
CE	360(3)
Agron	360(3), 473(4)

Table 1b. Requirements for B.S. in geology (Option B: Environmental geology/hydrogeology)

Required courses

Dept.	No.	Title	Credit	Semester
Geol	100	The Earth*	3	F/S/SS
Geol	100L	The Earth – Lab*	1	F/S
Geol	102	History of the Earth	3	S
Geol	102L	History of the Earth – Lab	1	S
Geol	302	Summer Field Studies	6	SS
Geol	311	Mineralogy and Earth Materials	5	F
Geol	356	Structural Geology	5	S
Geol	368	Stratigraphy and Sedimentation	4	F
Geol	411	Hydrogeology	4	F
Geol	419	Environmental Geochemistry	3	F
Geol	479	Surficial Processes	3	F

* Geol 201 may be substituted for Geol 100, 100L

6 credits of geology electives

Dept.	No.	Title	Credit	Semester
Geol	306	Geology Field Trip	1-2	F/S
Geol	402	Watershed Hydrology and Surf. Proc.	4	F
Geol	409	Field Methods in Hydrogeology	2	Alt. SS (06)
Geol	414	Applied Groundwater Flow Modeling	3	Alt. S (06)
Geol	415	Paleoclimatology	3	Alt. S (07)
Geol	426	Stable Isotopes in the Environment	3	Alt. F (05)
Geol	434	Contaminant Hydrogeology	3	S
Geol	451	Applied & Environmental Geophysics	3	S
Geol	452	GIS for Geoscientists	4	F
Geol	454X	AutoCAD for Geoscientists	2	Alt. S (05)
Geol	456X	Introduc. to Geostatistics using ArcGIS	2	Alt. S (05)
Geol	457	Exploration Seismology	3	Alt. F (06)
Geol	474	Glacial and Quaternary Geology	3	Alt. S (07)
Geol	483	Environmental Biogeochemistry	4	S

Required supporting courses

Dept.	No.	Title	Credit	Semester
Math	165	Calculus I	4	F/S/SS
	166	Calculus II	4	F/S/SS
<i>OR</i>				
Math	181	Calculus and Diff. Eq. for the Life Sci.	4	F/S
	182	Calculus and Diff. Eq. for the Life Sci.	4	F/S
Chem	163	General Chemistry	4	F/S
	164	General Chemistry	3	
Chem	163L	General Chemistry Lab	1	F/S
	164L	General Chemistry Lab	1	
Phys	111	General Physics	4	F/S/SS
	112	General Physics	4	F/S/SS

Required supporting courses

Dept.	No. (credit)
	An additional 6 credits of Math, Stat, Engineering, Agronomy, and Com S, which may include but are not limited to:
Math	265(4), 266(3), 267(4), 307(3), 385(3)
Stat	101(4), 104(3)
Com S	107(3), 207(3)
CE	360(3)
Agron	360(3), 473(4)

Table 2. Requirements for B.S. in Earth science**Required courses**

Dept.	No.	Title	Credit	Semester
Geol	100	The Earth*	3	F/S/SS
Geol	100L	The Earth – Lab*	1	F/S
Geol	102	History of the Earth	3	S
Geol	102L	History of the Earth - Lab	1	S
Geol	302	Summer Field Studies	6	SS
Geol	311	Mineralogy and Earth Materials	5	F
Geol	356	Structural Geology	5	S
Geol	365	Igneous and Metamorphic Petrology	3	S
Geol	368	Stratigraphy and Sedimentation	4	F
Geol	479	Surficial Processes	3	F
Mteor	206	Introduction to Meteorology	3	F/S

8 credits in agronomy, astronomy, & environmental science

Dept.	No.	Title	Credit	Semester
Agron	154	Fundamentals of Soil Science	3	F/S
Agron	260	Soils and Environmental Quality	3	F/S
Agron	406	Climate of the Continents	3	F
Agron	473	Soil Genesis and Landscape Rel.	4	S
Astro	120	The Sky and the Solar System	3	F/S/SS
Astro	150	Stars, Galaxies, and Cosmology	3	F/S
EnSci	402	Watershed Hydrol. and Surf. Proc.	4	F
EnSci	409	Field Methods in Hydrogeology	2	Alt. SS (06)
EnSci	411	Hydrogeology	4	F
EnSci	414	Applied Groundwater Flow Model.	3	Alt. S (06)
EnSci	415	Paleoclimatology	3	Alt. S (07)
EnSci	419	Environmental Geochemistry	3	F
EnSci	426	Stable Isotopes in the Environment	3	Alt. F (05)
EnSci	434	Contaminant Hydrogeology	3	S
EnSci	451	Appl. & Environmental Geophys.	3	S
EnSci	483	Environmental Biogeochemistry	4	S

Plus 8 credits in related areas of agronomy, astronomy, environmental science, meteorology, and other approved areas

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* Geol 201 may be substituted for Geol 100,100L

Required supporting courses

Dept.	No.	Title	Credit	Semester
Math	165	Calculus I	4	F/S/SS
	166	Calculus II	4	F/S/SS
<i>OR</i>				
Math	181	Calculus and Diff. Eq. for the Life Sci.	4	F/S
	182	Calculus and Diff. Eq. for the Life Sci.	4	F/S
Chem	163	General Chemistry	4	F/S
	164	General Chemistry	3	
Chem	163L	General Chemistry Lab	1	F/S
	164L	General Chemistry Lab	1	
Phys	111	General Physics	4	F/S/SS
	112	General Physics	4	F/S/SS

Required supporting courses

Dept.	No. (credit)
Com S	107(3)
Stat	104(3)
OR	101(4)

Table 3. Requirements for B.A. in Earth science

Required courses

Dept.	No.	Title	Credit	Semester
Geol	100	The Earth*	3	F/S/SS
Geol	100L	The Earth – Lab*	1	F/S
Geol	102	History of the Earth	3	S
Geol	102L	History of the Earth - Lab	1	S
Geol	302	Summer Field Studies	6	SS
Geol	311	Mineralogy and Earth Materials	5	F
Geol	356	Structural Geology	5	S
Geol	365	Igneous and Metamorphic Petrology	3	S
Geol	368	Stratigraphy and Sedimentation	4	F
Mteor	206	Introduction to Meteorology	3	F/S
Astro	120	The Sky and the Solar System	3	F/S/SS
Astro	150	Stars, Galaxies, and Cosmology	3	F/S

3 credits of a geology elective

Dept.	No.	Title	Credit	Semester
Geol	306	Geology Field Trip	1-2	F/S
Geol	402	Watershed Hydrol. and Surf. Proc.	4	F
Geol	411	Hydrogeology	4	F
Geol	415	Paleoclimatology	3	Alt. S (07)
Geol	419	Environmental Geochemistry	3	F
Geol	426	Stable Isotopes in the Environment	3	Alt. F (05)
Geol	434	Contaminant Hydrogeology	3	S
Geol	451	Appl. & Environmental Geophys.	3	S
Geol	452	GIS for Geoscientists	4	F
Geol	457	Exploration Seismology	3	Alt. F (06)
Geol	474	Glacial and Quaternary Geology	3	Alt. S (07)
Geol	479	Surficial Processes	3	F
Geol	483	Environmental Biogeochemistry	4	S

* Geol 201 may be substituted for Geol 100, 100L

Required supporting courses

Dept.	No.	Title	Credit	Semester
Math	151 or 160 or 165 or 181	Calc. for Bus. and Soc. Sci., or Survey of Calc., or Calc. I, or Calc. and Diff. Eq. for Life Sciences	3 or 4 or 4 or 4	F/S/SS
Chem	163	General Chemistry	4	F/S
	164	General Chemistry	3	F/S
Chem	163L	General Chemistry Lab	1	F/S
	164L	General Chemistry Lab	1	F/S
Phys	111	General Physics	4	F/S/SS
	112	General Physics	4	F/S/SS
Com S	107	Applied Computer Programming	3	F/S
OR				
Stat	101 or 104	Principles of Statistics, Intro. to Statistics	4,3	F/S/SS
Biol.		1 course in Biology, Botany, or Zoology		

Requirements for Teacher Certification (see p. 338 for complete detail)

Dept.	Course Number
C I	201, 204, 280, 333, 406, 415, 426
Engl	104 and 105
Psych	230 or HD FS 102
Lib	160
	9 credits in Natural Sciences
	9 credits in Social Sciences
	6 credits in Humanities
	9 credits in Communication Skills
	One additional course in interpersonal or group presentation

Note: the State of Iowa requires the PPST exam prior to admission to Teacher Ed. and the PRAXIS II exam prior to licensure

Table 4. Sequence of courses for the B.S. in geology (a. traditional geology; b. environmental geology/hydrogeology)

a. Year	Semester	Geology Requirement (cr.)	Math - Science Requirement (cr.)	Geology Elective (cr.)
1	Fall	100(3), 101L(1)	Math 181(4), Chem 163(4), 163L(1)	
	Spring	102(3), 102L(1)	Math 182(4), Chem 164(3), 164L(1)	
2	Fall	311(5)	Phys 111(4)	
	Spring	365(3)	Phys 112(4)	
3	Fall	368(4), 479(3)	Com S 107(3), Stat 101(4)	402(4) or 426(3) or 452(4) or 457(3) 414(3) or 415(3) or 434(3) or 451(3) or 474(3) or 483(4)
	Spring	356(5)		
Summer		302(6)		
4	Fall			411(4) or 419(3)
	Spring			
b. Year	Semester	Geology Requirement (cr.)	Math – Science Requirement (cr.)	Geology Elective (cr.)
1	Fall	100(3), 101L(1)	Math 181(4), Chem 163(4), 163L(1)	
	Spring	102(3), 102L(1)	Math 182(4), Chem 164(3), 164L(1)	
2	Fall	311(5)	Phys 111(4)	
	Spring		Phys 112(4)	
3	Fall	368(4), 479(3)	Com S 107(3), Stat 101(4)	402(4) or 426(3) or 452(4) or 457(3) 414(3) or 415(3) or 451(3) or 474(3) or 483(3)
	Spring	356(5)		
Summer		302(6)		
4	Fall			434(3)
	Spring	411(4), 419(3)		