#### Bachelor of Science in Natural Science – Physical Science with Adolescent to Young Adult (Grades 7-12) Licensure 2015 - 2016 Catalog

Name:			ID Number:					
GENERAL E	EDUCATION PROGRAM	(24-26 hrs)		Natural Sciences				
*A grade of (	C or higher is required for	this component	The Natural	Sciences component of	the GEP will			
ENGLISH C	OMPOSITION			n the natural sciences o				
COURSE		HRS.						
	TITLE placement, either 8 or 6 seme							
Depending on	placement, either 8 or 0 seme	ster nours.	Wo	stern Perspectives (Se	lect 1)			
ENGL 1101	Discourse & Comp.	5	COURSE	TITLE	HRS.			
ENGL 1102	Discourse & Comp.	3	ENGL 2211	Survey of English Lit.1				
ENGL 1105	Comp. & Argument.	3	ENGL 2212 HIST 3115	Survey of English Lit.2 Women in Medieval Eu				
			HIST 3300	Christianity in Ea. Am.				
Fine	e & Performing Arts (S	elect 1)	HIST 3520		3			
COURSE	TITLE	HRS.	IDST 2225	Civilization & Lit. 1	3			
			IDST 2226	Civilization & Lit. 2	3			
ARTH 1101	Introduction to Art	3	PHIL 2200	Intro. to Philosophy	3			
ENGL 2275	Amer. Film History	3	RELI 2230		3			
MUSI 1201	Music Appreciation	3	KLLI 2230	mist. of Chr. Thought				
MUSI 2210	Music History I	3	Non	Western Perspectives (	Calact 1)			
PHIL 3300	Philosophy of Film	3	COURSE	TITLE	HRS.			
THAR 1000	Introduction to Theater		COURSE	HILE	IIKS.			
			ANITH 2250	C 1 1 1 1 1	2			
	Quantitative Reasonin	10	ANTH 2250	Cultural Anthropology	3			
	Quantitutive Reasonii	is	ARTH 3366	Non-Western Survey	3			
TI 0	·		GEOG 2201	Cultural Geography	3			
	ative Reasoning compo	*	GEOG 3351	Reg. Geog.: Middle E.	3			
GEP will be	met within the natural .	science	GOVT 3320	Third World Politics	3			
degree.			HIST 3410	East Asian History	3			
			HIST 3430	Anc. Indian Cu. of Soc	·			
	Social Science (Select	1)	HIST 3432	Gandhi & Mod. India				
COURSE	TITLE	HRS.	HIST 3500	Hist. Southern Africa	3			
			HIST 3550		3			
PSYC 1101	Intro. to Psychology	3	HIST 4420	Middle East (modern)	3			
15101101	muo. to 1 sychology		IDST 2227	Civilization & Lit.	3			
	Ethios (Coloct 1)		PHIL 2284	East Asian Philosophy	3			
COURSE	Ethics (Select 1) TITLE	HRS.						
COOKSE	HILE	IIKS.	Capstone					
PHIL 3320 ROCI 4485	Ethics Public/Priv. Life Reflec. Comm. Involv.		IDST 4490	Senior Seminar	3			
			(Check	klist continued on rev	erse side)			

# Bachelor of Science in Natural Science – Physical Science with Adolescent to Young Adult (Grades 7-12) Licensure 2015 – 2016 Catalog

SCIENCE CO	OMPONENT		(64 hrs)	ADOLESCEN	T/Young Adult Cour	SES (21 hrs)
COURSE	TITLE	HRS.		EDAE 3285	Found. of Sec. Educ. 3	
				EDAE 3385	Action Research 3	<u> </u>
BIOL 1151	General Biology I	4		EDAE 4400	Sec. School Curricu. 2	<u> </u>
CHEM 1141	General Chemistry I	4		EDAE 4433	Teaching Science 3	<u> </u>
CHEM 1142	General Chemistry 2	4		EDAE 4490	Clinical Practice 1	0
CHEM 3305	Organic Chemistry I	4				
CHEM 3306	Organic Chemistry 2	4				
CHEM 4411	Biochemistry	3		ADDITIC	ONAL MINIMUM REQUIF	DEMENTS
GEOL 1201	Phys. Geol. & Enviro.	4		ADDITIC	THAL WINIWOW REQUIR	KENIEN 15
MATH 2110	Calculus I	4				
MATH 2120	Calculus 2	4		134 semester	credit hours	
MATH 2500	Statistics I	3				
NTSC 1110	Scientific Reasoning	3		2.00 overall,	cumulative GPA	
PHYS 2210	Intro. Astronomy	3				
PHYS 2211	CalcBased Physics I	4		60 semester o	credit hours at 2000 level	
PHYS 2212	CalcBased Physics 2	4		or above		
PHYS 2250	Modern Physics	4		or above		
PSCI 2251	Phys. Sci. by Inq. 1	4		62 gamagtar 1	hours in the science	
PSCI 2252	Phys. Sci. by Inq. 2	4			nours in the science	
				component		
PROFESSION	NAL EDUCATION, REAL	DING				
	DEVELOPMENT CORE		(26 hrs)	SPECI	AL MINIMUM REQUIRE	MENTS
COURSE	TITLE	HRS.	(= = === =)	F	OR TRANSFER STUDENT	ΓS
EDUC 1115 EDUC 2230 EDUC 2240 EDUC 2245 EDUC 2248 EDUC 3310 EDIS 2250 EDRE 3305 PSYC 2130	Intro. to Education Instruc. Media/Tech. Found. of Education Multi-cultural Educa. Diversity Curriculum & Assess. Exceptionalities Content Area Reading Child Psychology	3 - 3 - 1 - 3 - 2 - 3		at SSU, of will be upper dividevel)  12 semester of	credit hours completed hich 21 credit hours mus ision courses (3000-4000 credit hours in natural apleted at SSU at the 300 l	

Shawnee State	University			in Natural Sciences in Co Licensure (Grades 7-12)	•	ction with Add	olesce	ent to Young Adult Earth, Life,		
	Basic Competency Skills Criteria		Related	Studies - (9 hrs)		Science Core - (22 hrs)				
Reading, and a grade of I	ia a combination of scores/grades (e.g., ACT English, ACT B in MATH1100). ACT, Score Academic Skills assessment, and ses in the GEP may be combined to meet this threshold.	A grade □ PSYC1101 □ PSYC2130 □ PSYC2170	(3 hrs) (3 hrs)	is required in this component.  Introduction to Psychology Child & Adolescent Psychology Educational Psychology	□ CI □ CI □ N	HEM1141 ( HEM1142 ( TSC1110 (	(4 hrs) (4 hrs) (3 hrs)	General Biology 1 General Chemistry 1 General Chemistry 2 Scientific Reasoning & Methodology Physical Science by Inquiry 1		
ENGLISH/WRITING	ACT score in English of 18 or higher Core Academic Skills assessment score in Writing of 162 or higher Grade of B or higher in ENGL1101/1102 AND ENGL1105  ACT score in Reading of 21 or higher	All of these cours		ompleted prior to enrolling in method courses.			٠,	Principles of Statistics Statistics 1		
READING	Act I score in Reading of 21 or nighter     Core Academic Skills assessment score in Reading of 156 or higher     Grade of B or higher in ENGL1101/1102 AND ENGL1105				*Ma4	.h 2500 in waarriwad f	iou tha Di	surical Science Concentration. See heat new		
МАТН	ACT score in Reading of 22 or higher     Core Academic Skills assessment score in Math of 150 or higher     Grade of B or higher in MATH1100or math core course equivalent				iwat	.n 2000 is required i	or the Pr	nysical Science Concentration. See back page.		
		Prof	essional Educ	cation Requirements (41 hrs)						
□ EDUC1115 (3 hr	rs) Intro to the Teaching Profession wlfield	A grade of C or	higher and 3.0	GPA is required in the Professional	l Requiren					
Level 1 Admission to 1	Teacher Education is required for the following:	Level 2 Admiss	ion to the Lice	ensure Program is required for the fo	following (			ssion to the Licensure Program is required for ollowing course:		
□ EDUC2230 (3 hr □ EDUC2240 (3 hr □ EDUC2245 (2 hr □ EDUC2248 (1 hr □ EDIS2250 (2 hr	rs) School & Society rs) Education in Multi-cultural Society r) Diversity: Cultures & Exceptionalities w/field	□ EDAE3285 □ EDRE3305 □ EDUC3310 □ EDAE3385 □ EDAE4400 □ EDAE4433	(3 hrs) Tea (3 hrs) Cur (3 hrs) Ac The follow (2 hrs) Sec (3 hrs) Tea	undations of Secondary Education wifting Reading in the Content Area criculum & Assesssment ticulum Research - Home, School & Communing courses are to be taken togethe condary School Curriculum, Instruction aching Science in Grades 7-12 wifield	munity Rela er. & Manage	ations <i>wlfield</i> ement <i>wlfield</i>	Semi	(10 hrs) Directed Teaching & Seminar w/field  nar meets 4-6 pm Tuesday and field time is  Monday—Friday all day in school.		
				Program (21-23 hrs) A grade of C	or higher	is required in this co	mponent.			
□ ENGL1101 □ ENGL1102 □ ENGL1105	ENGL1101 or ENGL1102 depending on placement. (5 hrs) Discourse and Composition (A) (3 hrs) Discourse and Composition (B) (3 hrs) Composition & Argumentation	Cultural Perspectives Western Perspectives Description   Control Contr	ctive - 3 hours 11 (3 hrs) 5 (3 hrs) 6 (3 hrs)	Survey of English Literature 1 (fi Civilization & Literature 1 (fi Civilization & Literature 2 (fi	fall) fall/sp) fall/sp) <u>l</u> fall/sp)	Science in Natural S Natural Science	the GEP Science. the GEP	is satisfied by the requirements of the Bachelor of its satisfied by the requirements of the		
- ARTH1101 - ENGL2275 - MUSI1201 - MUSI2211 - PHIL3300 - THAR1000  Social Sciences - 3 hor	(3 hrs)       Introduction to Art         (3 hrs)       American Film History         (3 hrs)       Music Appreciation         (3 hrs)       Music History 1         (3 hrs)       Philosophy of Film         (3 hrs)       Introduction to Theatre	Non-Western Pe	50 (3 hrs) 66 (3 hrs) 01 (3 hrs) 51 (3 hrs) 00 (3 hrs) 0 (3 hrs)	Reg. Geog. of the Middle East Third World Politics East Asian History Ancient Indian Culture/Society Gandhi and Modern India History of Southern Africa Middle East in Modern Times Civilization and Literature 3	(fall/sp) <u>(fall/sp)</u>	Ethics - 3 hours (Se  PHIL3320 ROCI4485  Capstone - 3 hours	elect one Ethics in Reflection	l Public and Private Life ons on Community Involvement eminar		
			-	2015-2016						
			2	1010-2010						

#### Students are required to choose one of the following areas of concentration.

	Science Core—(22 hours)								
□ BIOL1151	(4 hrs)	General Biology 1							
□ CHEM1141	(4 hrs)	General Chemistry 1							
□ CHEM142	(4 hrs)	General Chemistry 2							
□ NTSC1110	(3 hrs)	Scientific Reasoning & Methodology							
□ PSCI2251	(4 hrs)	Physical Science by Inquiry 1							
□ GEOL2204	(4 hrs)	Sedimentary Rocks & Stratigraphy							
Select One (3 hours)									
□ MATH1500	(3 hrs)	Principles of Statistics							
□ MATH2500 *	(3 hrs)	Statistics 1							
	. ,								
*Math2500 is require	ed for Physica	al science Concentration							

Life Science - (41 Hours)							
□ BIOL1130 □ BIOL1152 □ BIOL3750 □ BIOL3750 □ BIOL3850 □ BIOL4486 □ BIOL4770 □ BIOLXXX □ GEOL1201 □ MATH1300							

	Earth Science - (41-43 Hours)								
□ BIOL3852 □ GEOG2227 □ GEOL1201 □ GEOL1202 □ GEOL2203 □ GEOL2204 □ GEOL3205 □ GEOL4486 □ MATH 1300 □ MATH1900 □ PHYS2210	(4 hrs) (3 hrs) (4 hrs) (4 hrs) (4 hrs) (4 hrs) (4 hrs) (1-3 hrs) (5 hrs) (4 hrs) (4 hrs)	Marine Biology Foundations of Meterology Physical Geology & Human Environment Historical Geology Mineralogy Sedimentary Rocks & Stratigraphy Igneous & Metamorphic Petrology Senior Project Precalulus Brief Calculus with Applications Introductory Astronomy							

	Physical Science - (41Hours)								
□ CHEM3305 □ CHEM3306 □ CHEM4411 □ GEOL1201 □ MATH2110 □ MATH2500* □ PHYS2210 □ PHYS2211 □ PHYS2212 □ PHYS2250 □ PSCI2252	(4 hrs) (4 hrs) (3 hrs) (4 hrs)	Organic Chemistry 1 Organic Chemistry 2 Biochemistry Physical Geology & Human Environment Calculus 1 Calculus 2 Statistics 1 Introductory Astronomy Calculus-based Physics 1 Calculus-based Physics 2 Modern Physics Physical Science by Inquiry 2							
*Meets Science Core requirement on front page.									
Revised 11/7/2014									
		Nevised 11/1/2014							



# Department of Teacher Education

## BS Natural Sciences AYA Earth, Life or Physical Science w/Licensure Grades 7-12

Suggested Sequence Asterisk (\*) indicates the course includes a field component. Plus (+) indicates that math majors see content courses.

			Fall		Spring	
nce	Fres	h	Discourse & Composition OR (5) ENGL1102 Discourse & Composition  MATHxxxx (+GEP)  NTSC1110 Scientific Reasoning & Metho. Fine Arts GEP PSYC1101 Intro. to Psychology	(3) (3) (3) (3) (3) (3) (3) 17 Hrs	□ EDUC1115*Intro. to Teaching Profession □ ENGL1105 Composition & Argument □ Science GEP □ Content □ Content □ Apply for Level 1 Admission	(3) (3) (4) ( ) ( ) ( )
AYA Earth, Life or Physical Science	Soph	0	<ul> <li>□ EDUC2230 Educational Media, Tech. &amp; Computers</li> <li>□ EDUC2240 School &amp; Society</li> <li>□ PSYC2130 Child &amp; Adolescent Psychology</li> <li>□ Western Persp GEP</li> <li>□ Content</li> <li>□ Content</li> </ul>	(3) (3) (3) (3) ( ) ( ) ( )	□ EDUC2245 Education in Multi-cultural Society □ EDUC2248*Diversity:Cultures & Exceptionalitie □ EDIS2250 Exceptional Learning Needs □ Non Western Persp GEP □ Content Course □ Content Course □ Content Course	(2) (3) ( ) ( ) ( ) Hrs
AYA Earth, L	Juni	or	□ EDAE3285*Foundations of Secondary Educe □ Ethics GEP □ Content Course	. (3) (3) ( ) ( ) ( ) ( ) <u>( )</u> Hrs	<ul> <li>EDRE3305 Teaching Reading in the Content Are</li> <li>EDUC3310 Curriculum &amp; Assessment</li> <li>EDAE3385* Action Research-Home, School &amp; Community Relations</li> <li>PSYC2170 Educational Psychology</li> <li>Content Course</li> <li>Content Course</li> <li>Apply for Level 3 Admission</li> </ul>	ea(3) (3) (3) (3) ( ) ( ) ( ) Hrs
Rev 01/01/2015 Copy on Gray 20	Senio	or	<ul> <li>□ EDAE4400 Secondary School Curriculum Instruction &amp; Management</li> <li>□ EDAE4433*Teaching Science in Grades 7-12 (Methods)</li> <li>□ Content Course</li> <li>□ Content Course</li> <li>□ Content Course</li> <li>□ Content Course</li> <li>□ Content Course?</li> </ul>	(2) (3) ( ) ( ) ( ) ( ) Hrs	<ul> <li>□ EDAE4490*Directed Teaching &amp; Seminar</li> <li>□ IDST4490 Capstone</li> <li>□ Content Course</li> </ul>	(10) (3) (_) Hrs

#### Science Core – (22 hours)

□ BIOL1151 (4 hrs) Principles of Biology
 □ CHEM1141 (4 hrs) General Chemistry 1
 □ CHEM1142 (4 hrs) General Chemistry 2
 □ NTSC1110 (3 hrs) Scientific reasoning & Methodology
 □ PSCI2251 (4 hrs) Physical Science 1
 Select One (3 hours)
 □ MATH1500 (3 hrs) Principles of Statistics
 □ MATH2500\*(3 hrs) Statistics
 \*MATH2500 is required for Physical Science Concentration.
 (See below)

#### Life Science-(41 hours)

□ BIOL1130 (4 hrs) Principles of Anatomy & Physiology 1
 □ BIOL1152 (4 hrs) General Biology 2
 □ BIOL3750 (4 hrs) Microbiology
 □ BIOL3770 (4 hrs) Genetics & Molecular Biology
 □ BIOL3850 (4 hrs)Ecology
 □ BIOL4485 (4 hrs)Senior Project
 □ BIOL4770 (4 hrs) Cell Biology
 □ BIOLXXX (4 hrs) Biology Elective
 □ GEOL1201 (4 hrs) Physical Geology & Human Environment
 □ MATH1300(5 hrs)Pre-calculus

#### Earth Science-(41 hours)

BIOL3852 (4 hrs) Marine Biology
GEOG2227 (3 hrs) Foundations of Meteorology
GEOL1201 (4 hrs) Physical Geology & Human Environment
GEOL1202 (4 hrs) Historical Geology
GEOL2203 (4 hrs) Mineralogy
GEOL2204 (3 hrs) Sedimentary Rocks & Stratigraphy
GEOL3205 (4 hrs) Igneous & Metamorphic Petrology
GEOL4485 (3 hrs) Senior Project
MATH1300 (5 hrs) Pre-calculus 1
MATH1900 (4 hrs) Brief Calculus with Application
PHYS2210 (3 hrs) Introductory Astronomy

### Physical Science-(42 hours)

#### **Guide for the Natural Sciences Student**

Freshman	Meet with your academic advisor to form a	Join a club! Pre-Med / Chemistry / World	Start drafting your résumé
Year	plan for your degree. Talk with your advisor about future career goals.  Pick up the every-other-year course list, degree checklist, and four-year plan.	Before Us / Geology.  Like the Department Facebook page to learn about goings on. http://bit.ly/SSU_Science  Follow us on Twitter too: @SSU_Science	Visit Student Career Development Office: ADM036  Spring semester: Create a profile and upload resume to College Central: www.collegecentral.com/shawnee
Sophomore Year	Meet with your academic advisor and make sure that you are on track with your degree.  Learn about our minors, and consider signing up for one.	Talk to faculty members about becoming a lab assistant.  Consider applying for a summer internship through the Student Career Development office.  Consider joining a professional organization in your major, such as the ACS (Chemistry), GSA (Geology), etc.	Learn about our study abroad opportunities: www.shawnee.edu/offices/international- students/study-abroad.aspx  Volunteer on/off campus to gain experience Meet with Peer Career to update your résume
Junior Year	Meet with your academic advisor.  Make sure you examine the every-other-year science course list and talk with your advisor about your graduation plan.  Consider getting involved with an undergraduate research project. Talk to several professors about research possibilities.	Consider running for office in a student club Late fall semester, apply for a summer research experience for undergraduates (REU), such as NSF-REU: www.nsf.gov/crssprgm/reu/ or a summer internship.	Have the Career Development Office assist with updating your résumé and practice interviewing through Mock Interviews.
Senior Year	Meet with your academic advisor and be sure that you will soon meet all your degree requirements.  Print off your degree audit, and cross reference with your degree checklist.	Get involved with tutoring through the student success center.  Continue your involvement with a student club.	Start job search in fall semester. Update résumé, join LinkedIn, and consider taking advantage of your professional science organization's job database and other tools.  If applying for graduate school, take the GRE and start applying in fall.

# **Every-Other-Year Course Schedule**

#### **Natural Sciences**

Note: This course schedule is subject to change. Be sure to talk to your advisor before you schedule your classes!

Course	Fall 2014	Spring 2015	Fall 2015	Spring 2016	Fall 2016	Spring 2017	Fall 2017	Spring 2018	Fall 2018	Spring 2019	Fall 2019	Spring 2020	Irregular/As Needed
	•		-			Biolo	gy		-				
BIOL2250 Plant Taxonomy	~				~				~				
BIOL2252 Dendrology			~				~				~		
BIOL2253 Practical Horticulture				<b>'</b>				<b>~</b>				•	
BIOL3350 Entomology	~				~				~				
BIOL3251 Summer Flora													✓ (Summers)
BIOL3254 Economic Botany													<b>~</b>
BIOL3270 Plant Anatomy & Morphology		<b>v</b>				<b>'</b>				•			
BIOL3271 Non-vascular Plants													~
BIOL3359 Comparative Vertebrate Anatomy			~				~				~		
BIOL3360 Animal Physiology		~				~				~			
BIOL3640 Histology				~				~				<b>V</b>	
BIOL3850 Ecology	~				~				~				
BIOL3852 Marine Biology			~				~				~		
BIOL3860 Field Methods													~
BIOL3870 Evolution		<b>v</b>				<b>/</b>				<b>'</b>			
BIOL4270 Plant Physiology													<b>~</b>
BIOL4355 Animal Behavior		~				<b>✓</b>				<b>✓</b>			

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Last Updated: 7/23/15

Fall 2014	Spring 2015	Fall 2015	Spring 2016	Fall 2016	Spring 2017	Fall 2017	Spring 2018	Fall 2018	Spring 2019	Fall 2019	Spring 2020	Irregular/As Needed
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	2014 ✓	2014 2015  V  V  V  V  V  V  V  V  V  V  V  V  V	2014 2015 2015  V V V V V V V V V V V V V V V V V V	2014   2015   2015   2016	2014   2015   2016   2016   2016	2014   2015   2015   2016   2016   2017	2014   2015   2015   2016   2016   2017   2017	2014   2015   2015   2016   2016   2017   2017   2018	2014   2015   2015   2016   2016   2017   2017   2018   2018   2018	2014   2015   2016   2016   2017   2017   2018   2018   2019	2014   2015   2016   2016   2017   2017   2018   2018   2019   2019	2014   2015   2015   2016   2016   2017   2017   2018   2018   2019   2019   2020

Note: This course schedule is subject to change. Be sure to talk to your advisor before you schedule your classes!

Last Updated: September 25, 2014 AMN