

# REPORTS AND CONSENT AGENDA

## IV. Introductions and Reports

- A. *Introductions*
- B. *Report from the Chair* Regent Feuerborn, Chair
- C. *Report from the President & CEO* Blake Flanders, President & CEO
- D. *Report from System Council of Presidents* President Rittle
- E. *Report from Council of Presidents* President Muma
- F. *Report from Council of Faculty Senate Presidents* Aleks Sternfeld-Dunn
- G. *Report from Students' Advisory Committee* Rija Khan
- H. *Report from the Community Colleges* President Rittle
- I. *Report from the Technical Colleges* President Genandt

## V. Standing Committee Reports

- A. *Academic Affairs* Regent Kiblinger
- B. *Fiscal Affairs & Audit* Regent Rolph
- C. *Governance* Regent Feuerborn

## VI. Approval of Consent Agenda

- A. *Academic Affairs*
  - 1. **Act on Request to Offer a Bachelor of Science in Environmental Science – KSU** **Daniel Archer,**  
**VP, Academic Affairs**

### Summary

*Universities may apply for approval of new academic programs following the guidelines in the Kansas Board of Regents Policy Manual. Kansas State University has submitted an application for approval and the proposing academic unit has responded to all of the requirements of the program approval process. Board staff concurs with the Board Academic Affairs Standing Committee and the Council of Chief Academic Officers in recommending approval.*

## I. General Information

- A. **Institution** Kansas State University
- B. **Program Identification**
  - Degree Level: Bachelor of Science
  - Program Title: Environmental Science
  - Degree to be Offered: Environmental Science
  - Responsible Department or Unit: College of Arts and Sciences
  - CIP Code: 03.0104
  - Modality: Face-to-Face
  - Proposed Implementation Date: August 2021

Total Number of Semester Credit Hours for the Degree: 120

**II. Clinical Sites:** Does this program require the use of Clinical Sites? no

### III. Justification

The addition of an environmental science program at Kansas State University would be a low-cost investment that has the potential to grow university enrollment at a time of need, not only for enrollments, but also because we currently face unprecedented environmental challenges with consequences for future economic growth in Kansas and beyond. As a land grant institution, it is central to our mission to provide training that will help the next generation meet those challenges. Threats from environmental challenges are increasing. Recent United Nations reports highlight global environmental challenges associated with climate change and loss of biodiversity, including the economic toll of those challenges (IPBES, 2019; IPCC, 2018).

Kansas is not immune from these global environmental issues. Climate change is increasing the risk of drought in the Central Plains (Cook, Ault, and Smerdon, 2015) at a time when groundwater availability is decreasing due to depletion and contamination in portions of the High Plains aquifer (Lane et al., 2020). Water availability directly influences biodiversity within Kansas ecosystems (Perkin et al. 2017), as well as rural Kansas economies via sustainable range management and food production (Kansas Water Vision, 2020). Water quality and quantity is also a concern of the Kansas oil and gas industry. The American Association of Petroleum Geologists lists environmental issues as one of its top challenges (AAPG Learn Blog, 2017).

Reflecting the gravity of these challenges, projected growth in the environmental workforce is high. Nationally, environmental science employment is expected to grow 8% from 2018-2028 (US Bureau of Labor Statistics Occupational Outlook Handbook, 2020). Similarly, growth in Kansas is expected to be 12.5% from 2016-2026 (Kansas Department of Labor 2026 Employment Projections, 2020). More details are provided in the Employment section below.

As workforce demand grows, awareness of environmental challenges is also growing. Younger generations are more aware of environmental challenges and more willing to act than older generations (Climate Note, 2019), potentially motivating them to seek environmental science programs (see Market Analysis). Moreover, we reason that, by providing a pathway for environmentally aware students to come to Kansas State University, the program also has the potential to help draw new students into the associated departments by rebranding their curricula and career opportunities. For example, geologists and geographers do not just collect rocks and make maps (Lemetti, 2019; Meola, 2017). They help contribute solutions to some of society's most pressing needs, including environmental challenges.

The interdisciplinary program we have defined represents a good investment for Kansas State University and for our potential students. Nearly all of the courses included in the proposed curriculum are courses that are already offered in the associated departments (see Curriculum section). Therefore, minimal university support will be required to initiate the program (see Budget section). Moreover, the proposed curriculum allows students to obtain dual majors without adding many additional courses – approximately one additional semester.

Lastly, an environmental science program will contribute to the goals of Kansas State University and the state of Kansas. The program will contribute to the K-State 2025 Visionary Plan by promoting interdisciplinary scholarly activities and collaborations (Theme 1 actions 2, 6, 10) and increasing interdisciplinary educational opportunities (Theme 2, actions 1, 4) and infrastructure (Theme 6, action 3) (K-State 2025 Visionary Plan, 2020). Moreover, the program will contribute the Kansas Water Vision by helping supply a future workforce prepared to meet challenges in water quantity and quality (Kansas Water Vision, 2020).

In summary, the addition of an environmental science program at K-State is a smart choice. It would be a timely, low-cost investment that is aligned with the goals of Kansas State University and the state of Kansas.

### IV. Program Demand: Market Analysis

- **Workforce demand is high.** The employment section below details the strong workforce demand for

students with environmental science training both nationally and within Kansas.

- **Awareness of environmental challenges is high among incoming students.** Recent United Nations reports highlight global environmental challenges associated with climate change and loss of biodiversity, including economic toll of those challenges (IPEBS, 2019; IPCC, 2018). As noted above, younger generations are more aware of these challenges and more willing to act than older generations (Climate Note, 2019). As a consequence of greater willingness to act, enrollment in environmental science majors is steadily increasing. For example, the Environmental Science major at Iowa State University had 49 enrolled students in 2003, 86 by 2009, and 207 by 2019 (Iowa State University Office of the Registrar, 2020). This trend is recognized nationwide.
- **There are no environmental science programs in Kansas.** The University of Kansas has an environmental studies program (166 majors and roughly 40 graduates/year; University of Kansas Environmental Studies Program, 2020). The program includes natural science as well as social science and humanities perspectives and little required math and natural science coursework. Thus, the program is less focused on quantitative natural science training than our proposed environmental science program at KSU. Our program will be unique for Kansas.
- **Reflecting high student demand, most major universities in surrounding states offer environmental science or studies degrees.** Environmental programs in adjacent states include (student numbers where available):
  - Nebraska - the University of Nebraska Lincoln and Omaha (229 students total), Doane University, Creighton
  - Oklahoma - Oklahoma State and the University of Oklahoma (64 graduates/year collectively), the University of Tulsa
  - Iowa - Iowa State and the University of Iowa (336 students collectively), the University of Northern Iowa
  - Missouri – the University of Missouri (Columbia and KC), Missouri State University, St Louis University, and St. Louis University
  - Arkansas – the University of Arkansas Fayetteville (113 students), the University of Central Arkansas, and Arkansas State University
  - Colorado – the University of Colorado Boulder (850 majors), Colorado Mesa University, and Western Colorado University

**V. Projected Enrollment for the Initial Three Years of the Program**

The table below shows the estimated number of new cohorts for each year. Thus, we estimate that the cumulative number of students in the program by year three will be 90. The estimated total number of credit hours is for the total number of students in the program each year and assumes 31 credit hours per student for year 1, 29 for year 2, and 30 for year 3, based on the example curriculum below.

Year	Headcount Per Year		Student Credit Hrs Per Year	
	Full- Time	Part- Time	Full- Time	Part- Time
Implementation	20		620	
Year 2	30		1510	
Year 3	40		2710	

**VI. Employment**

Data available from the U.S. Department of Labor, Bureau of Labor Statistics (BLS) demonstrate strong job prospects for environmental scientists:

- **Growth in environmental science jobs is projected to be high nationally and within Kansas.** BLS reported 85,000 environmental science jobs nationally in 2018 with projected workforce growth for 2018-2028 of 8% (faster than average) (US Bureau of Labor Statistics Occupational Outlook Handbook, 2020).

In Kansas, state workforce projections (2016-2026) report 1,052 environmental science jobs in 2016 with a projected growth of 12.5% collectively (Kansas Department of Labor 2026 Employment Projections, 2020).

- **This growth reflects the critical services that environmental scientists provide.** Environmental scientists help protect human health and improve sustainability by cleaning up polluted sites, advising policymakers on the value of ecosystem services to Kansas residents, and working with industry to reduce environmental impacts. In 2018, most environmental scientists worked in state governments (24%), consulting firms (24%), local governments (12%), engineering services (8%), and federal government (6%) positions (US Bureau of Labor Statistics Occupational Outlook Handbook, 2020). Many people with environmental science training also become teachers (US Bureau of Labor Statistics Occupational Outlook Handbook, 2020). As human populations and the need for natural resources grow, the importance of the environmental science workforce also grows.
- **Salaries for environmental scientists are favorable.** Nationally, the median annual salary for environmental scientists and specialists was \$71,130 in 2018 (US Bureau of Labor Statistics Occupational Outlook Handbook, 2020). In Kansas, median annual salary for Environmental Science and Protection Technicians and Environmental Scientist and Specialists was \$45,700 and \$65,410, respectively (Kansas Labor Information Center, 2020).
- **An environmental science program can help stimulate growth in participating departments, which also have strong workforce projections.** The participating departments are Agronomy, Biology, Geography and Geospatial Sciences, and Geology. The occupations with the 10 highest projected growth rates in Kansas (2016-2026) include Soil and Plant Scientists (21.5%), Biological Technicians (16.6%), Geological and Petroleum Technicians (15.7%), and Geoscientists (10.8%) in addition to the environmental science occupations listed above (Kansas Department of Labor 2026 Employment Projections, 2020).

## VII. Admission and Curriculum

### A. Admission Criteria

Our admission criteria are consistent with those of the College of Agriculture and the College of Arts & Sciences. Admission to K-State is test optional and requires achieving

- A high school GPA (weighted or unweighted) of 3.25 or higher **OR**
- ACT composite score of 21 **OR** an SAT ERW+M of 1060 or higher

**AND**, if applicable, achieve a 2.0 GPA or higher on all college credit taken in high school.

### B. Curriculum

The proposed curriculum provides a balance between breadth and focus. Briefly, students will complete core math and science courses that ensure breadth and provide a strong foundation for careers in environmental science. They will also complete elective course work primarily within a specialization area of their choosing. The curriculum structure not only ensures that the students will develop a disciplinary strength but also lowers the coursework load for a double major. For example, a student who specializes in Earth Systems within the Environmental Sciences program would be able to simultaneously complete most of the course requirements for a Geology BS.

All courses in the proposed curriculum already exist, except for the Environmental Sciences Orientation (ENSCI 101) and Environmental Sciences Internship (ENSCI 410). ENSCI 101 is a one credit course that will create a common beginning that sparks community development. As such, it is a low-cost investment that can add great value to the program. ENSCI 410 is a three-credit hour elective that can satisfy an individual experiential learning requirement within the curriculum.

An example course selection follows below. This curriculum would be appropriate for a student who selects Water Resources for their specialization area (Part D in the curriculum). Please note that this example represents one path out of numerous possibilities in our flexible curriculum (see full curriculum in Appendix A).

**Year 1: Fall****SCH = Semester Credit Hours**

Course #	Course Name	SCH 16
ENGL 100	Expository Writing I	3
COMM 105	Public Speaking IA	2
PHILO 100	Intro to Philosophical Problems (Philosophy elective)	3
MATH 205	General Calculus and Linear Algebra	3
PHYS 101	The Physical World	3
PHYS 103	The Physical World laboratory	1
ENSCI 101	Introduction to Environmental Science	1

**Year 1: Spring**

Course #	Course Name	SCH 15
ENGL 200	Expository Writing II	3
DANCE 120	Modern Dance I (Fine Arts elective)	2
STAT 325	Introduction to Statistics	3
CHEM 110	General Chemistry	3
CHEM 111	General Chemistry laboratory	1
ENGL 285	Introduction to American Ethnic Literature (US Multicultural Overlay elective)	3

**Year 2: Fall**

Course #	Course Name	SCH 14
GEOG 121	Introduction Physical Geography: Earth System Science	3
GEOG 122	Introduction Physical Geography: Earth System Science (lab)	1
GEOG 302	Cartography and thematic mapping (Specialization Area, Analytical and Geospatial Methods)	3
COMM 320	Theories in Human Communication (Literary or rhetorical arts elective)	3
GEOG 508	Geographic Information Systems I	4

**Year 2: Spring**

Course #	Course Name	SCH 15
GEOL 115	Environmental Geology (or GEOL100, Earth in Action)	3
GEOL 103	Geology Laboratory	1
AGRON 305	Soils	4
BIOL 198	Principles of Biology	4
LAR 322	Ethics and Environmental Dilemmas (Humans and the Environment Ethics elective)	3

**Year 3: Fall**

Course #	Course Name	SCH 15
HIST 151	History of the United States to 1877 (Western Heritage elective)	3
ECON 110	Principles of Macroeconomy (or ECON120, Microeconomics)	3
ANTH 310	Environmental Anthropology: living with change in the Anthropocene (Humans and the Environment Human-Environment elective #1)	3

ATM 661	Watershed Assessment and Management (Natural Environmental Systems Hydrosphere elective)	3
GEOL 502	Mineralogy (Natural Environmental Systems Geosphere elective)	3

**Year 3: Spring**

Course #	Course Name	SCH 15
SOCIO 363	Global Problems	3
GEOL 540	Geological Record of Climate Change (Natural Environmental Systems Atmosphere elective)	3
GEOL 605	Introduction to Geochemistry (Specialization Area, Water Resources elective)	3
AGRON 645	Soil Microbiology (Natural Environmental Systems Biosphere elective)	3
GEOL 125	Natural Disasters (Humans and the Environment Human-Environment elective #2)	3

**Year 4: Fall**

Course #	Course Name	SCH 15
AGEC 525	Natural Resource and Environmental Economics (Humans and the Environment Social Systems elective #1)	3
GEOL 599	Senior Thesis (Individual Experiential Learning elective)	3
AGRON 335	Environmental Quality (Specialization Area, Agroecosystems elective)	3
GEOG 740	Fluvial Geomorphology (Specialization Area, Water Resources elective)	3
AGRON 635	Soil and Water Conservation (Specialization Area, Water Resources elective)	3

**Year 4: Spring**

Course #	Course Name	SCH 15
NRES 582	Interdisciplinary Environmental Research	3
AGCOM 712	Environmental Communications (Humans and the Environment Social Systems elective #2)	3
GEOL 611	Hydrogeology (Specialization Area, Water Resources elective)	3
AGRON 515	Soil Genesis and Classification (Specialization Area, Agroecosystems elective)	3
BAE 669	Watershed Modeling (Specialization Area, Water Resources elective)	3

**Total Number of Semester Credit Hours 120**

**VIII. Core Faculty**

The Council of Chief Academic Officers has reviewed and approved the list of faculty who will teach in this program. There will be no graduate assistants assigned to this program.

**IX. Expenditure and Funding Sources** *(List amounts in dollars. Provide explanations as necessary.)*

A. EXPENDITURES	First FY	Second FY	Third FY
<b>Personnel – Reassigned or Existing Positions</b>			
Faculty			
Administrators <i>(other than instruction time)</i>			
Graduate Assistants			



Support Staff for Administration (e.g., secretarial)			
Fringe Benefits (total for all groups)			
Other Personnel Costs			
<b>Total Existing Personnel Costs – Reassigned or Existing</b>			
<b>Personnel – New Positions</b>			
Faculty			
Administrators (other than instruction time)	\$90,000	\$90,900	\$91,809
Student Assistants (UG)	\$18,000	\$18,180	\$18,362
Support Staff for Administration (e.g., secretarial)			
Fringe Benefits (total for all groups)	\$27,180	\$27,452	\$27,726
Other Personnel Costs			
<b>Total New Personnel Costs – New Positions</b>	\$135,180	\$136,532	\$137,897
<b>Start-up Costs - One-Time Expenses</b>			
Library/learning resources			
Equipment/Technology	\$5,000		
Physical Facilities: Construction or Renovation	\$10,000		
Other			
<b>Total Start-up Costs</b>	\$15,000		
<b>Operating Costs – Recurring Expenses</b>			
Supplies/Expenses	\$10,000	\$10,000	\$10,000
Library/learning resources			
Equipment/Technology		\$2,500	\$2,500
Travel			
Other			
<b>Total Operating Costs</b>	\$10,000	\$12,500	\$12,500
<b>GRAND TOTAL COSTS</b>	\$160,180	\$149,032	\$150,397

<b>B. FUNDING SOURCES</b> <i>(projected as appropriate)</i>	Current	First FY (New)	Second FY (New)	Third FY (New)
Tuition / State Funds		\$193,750	\$471,875	\$846,875
Student Fees		\$13,349	\$32,503	\$58,333
Other Sources				
<b>GRAND TOTAL FUNDING</b>		\$207,096	\$504,378	\$905,208

<b>C. Projected Surplus/Deficit (+/-)</b> (Grand Total Funding <i>minus</i> Grand Total Costs)		+\$46,916	+\$355,346	+\$754,811
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**X. Expenditures and Funding Sources Explanations**

**A. Expenditures**

**Personnel – Reassigned or Existing Positions**

Through the array of core courses and degree specialization courses listed in the Curriculum (Sections C and D; see full curriculum in the Appendix), over 50 faculty members have the potential to contribute to the delivery of the Environmental Science (Env Sci) program. All faculty teaching core and specialization courses are employed by Kansas State University in the College of Arts & Sciences or the College of Agriculture. Therefore, course offerings, aside from ENSCI101 and 410, are offered as part of current appointments. Percent time dedication varies with faculty member roles. Most faculty have an average teaching assignment of 40% FTE (i.e. four courses per academic year). Assuming one core course contributed by a participating faculty member per academic year (i.e. 0.1 FTE per year), and assuming approximately 25% of the students in their class will be Env Sci majors, each faculty member teaching an Env Sci core or specialist course would contribute ~0.025 FTE to the program. Core faculty listed above are those who have contributed significantly to the design of the new program and who we anticipate will continue to contribute substantially to the establishment and delivery of the program over at least its first three years. The Env Sci Program Director will have an assignment of 1 FTE, which includes teaching, advising, and program management. It is anticipated that Env Sci Advisory Board members will contribute ~0.1 FTE to program management and teaching over its first three years.

**Personnel – New Positions**

We requested funds to establish an Env Sci Program Director and a support position. The Director will be responsible for programmatic oversight of Env Sci courses and make recommendations on administration and student outcomes to the Env Sci Advisory Board. The Director will also (i) teach the Introduction to Environmental Science program orientation course (ENSCI101), (ii) coordinate the ENSCI410 (Internship) courses, (iii) advise all program majors (until such time as the number of majors exceeds 40), and (iv) undertake marketing and promotional activities in order to grow and expand the program as quickly as possible. The support staff will consist of undergraduate hourly employees, who will be responsible for assisting the Program Director with general administrative support and help facilitate events. For both positions, the budget includes a modest 1% raise each year after the first fiscal year.

**Start-up Costs – One-Time Expenses**

The proposed program requires start-up funds to purchase computers and other office technology and equipment (estimated cost \$5,000). Funds are also required to develop an Env Sci Program office, where we can conduct student advising and recruiting (estimated cost \$10,000).

**Operating Costs – Recurring Expenses**

Office computers and technology will periodically require upgrades starting in year two (estimated cost \$2,500/yr). We also require funds for supplies/expenses associated with office materials, instruction, IT support, and promotion and marketing activities (\$10,000/yr).

**B. Revenue: Funding Sources**

The budget model will flow all credit-hour-generated revenue to the college in which the course is assigned. Our budget projection in the table below is based on student credit hours (SCH) per year from the example curriculum and assumes that 75% of the student credit hours are generated in the College of Arts & Sciences and 25% are from the College of Agriculture. These values will ultimately depend on the course selections of the Env Sci



majors (see MOU). Furthermore, some of the course options available to students are taught in the College of Engineering. Revenue generation by those courses is not factored in the analysis.

		<u>Program year 1</u>		<u>Program year 2</u>		<u>Program year 3</u>	
<b>Cohort #1</b>		Year 1 (31 SCH)		Year 2 (29 SCH)		Year 3 (30 SCH)	
	Cost/SCH	SCH	Subtotals	SCH	Subtotals	SCH	Subtotals
In-state on-campus tuition	\$ 312.50	620	\$ 193,750	580	\$ 181,250	600	\$ 187,500
COAS fees	\$ 16.70	465	\$ 7,766	435	\$ 7,265	450	\$ 7,515
COA fees	\$ 20.00	155	\$ 3,100	145	\$ 2,900	150	\$ 3,000
Academic enhancement fee	\$ 4.00	620	\$ 2,480	580	\$ 2,320	600	\$ 2,400
Total revenue			\$ 207,096		\$ 193,735		\$ 200,415
<b>Cohort #2</b>		Year 1 (31 SCH)		Year 2 (29 SCH)			
	Cost/SCH			SCH	Subtotals	SCH	Subtotals
In-state on-campus tuition	\$ 312.50			930	\$ 290,625	870	\$ 271,875
COAS fees	\$ 16.70			697.5	\$ 11,648	652.5	\$ 10,897
COA fees	\$ 20.00			232.5	\$ 4,650	217.5	\$ 4,350
Academic enhancement fee	\$ 4.00			930	\$ 3,720	870	\$ 3,480
Total revenue					\$ 310,643		\$ 290,602
<b>Cohort #3</b>						Year 1 (31 SCH)	
	Cost/SCH					SCH	Subtotals
In-state on-campus tuition	\$ 312.50					1240	\$ 387,500
COAS fees	\$ 16.70					930	\$ 15,531
COA fees	\$ 20.00					310	\$ 6,200
Academic enhancement fee	\$ 4.00					1240	\$ 4,960
Total revenue							\$ 414,191
<b>Totals</b>		tot SHC	totals	tot SCH	totals	tot SCH	totals
In-state on-campus tuition		620	\$ 193,750	1510	\$ 471,875	2710	\$ 846,875
COAS fees		465	\$ 7,766	1132.5	\$ 18,913	2033	\$ 33,943
COA fees		155	\$ 3,100	377.5	\$ 7,550	678	\$ 13,550
Academic enhancement fee		620	\$ 2,480	1510	\$ 6,040	2710	\$ 10,840
Total revenue			\$ 207,096		\$ 504,378		\$ 905,208

**C. Projected Surplus/Deficit**

Our budget estimate projects revenue generation early as year one.

**XI. References**

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