



UNIVERSITY OF
GEORGIA

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University Council

August 20, 2021

UNIVERSITY CURRICULUM COMMITTEE – 2021-2022

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Dear Colleagues:

The attached proposal from the College of Agricultural and Environmental Sciences for a new major in Regenerative Bioscience (B.S.) will be an agenda item for the August 27, 2021, Full University Curriculum Committee meeting.

Sincerely,

Susan Sanchez, Chair

University Curriculum Committee

cc: Provost S. Jack Hu
Dr. Rahul Shrivastav

USG ACADEMIC PROGRAM APPLICATION

A. OVERVIEW

To be completed as part of SharePoint Submission

1. *Request ID: (SharePoint Generated unique ID)*
2. *Institution Name: University of Georgia*
3. *USG Sector: Research University*
4. *School/Division/College: College of Agricultural and Environmental Sciences*
5. *Academic Department: Animal and Dairy Science*
6. *Proposed Program Name: Regenerative Bioscience (B.S.)*
7. *Major: Regenerative Bioscience*
8. *CIP Code (6 digit): 26.0102*
9. *Degree Level: Bachelor of Science*
10. *Anticipated Implementation Semester and Year^: Fall 2022*
11. *Was this program listed in the most recent Academic Forecast?*

Yes

No (If no, explain why below)

This proposal was not included in the University of Georgia's Academic Forecast because it had not been submitted through the faculty governance process.

12. *Program Description (Provide a description of the program to be used in the Board of Regents meeting packet):*

Regenerative bioscience is a field of study that aims to develop new ways to replace, repair, or regenerate human and animal cells, tissues, or organs from a pathologic/diseased condition. In cases of severe injury or disease, including heart disease, stroke, Parkinson's disease, and Alzheimer's disease,

the innate healing and defense mechanisms of the body are limited and there remains no effective treatments. Therefore, the goal of regenerative bioscience is to find a way to cure previously untreatable injuries and diseases.

Regenerative bioscience is a broad, multidisciplinary field that brings together expertise in biology, chemistry, engineering, genetics, human and veterinary medicine, imaging, and other fields to find solutions to the most challenging medical problems faced by humans and animals. Cutting-edge research in regenerative bioscience has significant scope and includes research in the areas of cellular therapies, artificial organs, biomaterials, and medical devices, but also includes the development of innovative and translational diagnostic and modeling approaches. The College of Agricultural and Environmental Sciences (CAES) proposes to create a Regenerative Bioscience major at the University of Georgia (UGA) that provides students with a deep understanding of the biochemistry, genetics, cell biology, anatomy, and physiology of the normal and pathologic state and the theoretical and technical interdisciplinary regenerative bioscience knowledge to improve human and animal health.

The Regenerative Bioscience sector is growing rapidly. In 2019, there were over 987 regenerative medicine companies worldwide, with 534 companies located in North America. Georgia has more than 570 bioscience facilities, with many having a strong regenerative bioscience focus. Georgia is ranked among the top 15 states for overall bio-related occupational employment and was ranked 6th among the fastest-growing states in bio-related employment. These companies are looking to employ individuals with strong interdisciplinary knowledge in the biological and physical sciences with the technical expertise and critical thinking skills to develop, design, and create the regenerative therapeutics and diagnostics of the future. In addition, the state of Georgia houses four medical schools, one veterinary medicine school, one dental school, and many other health-related programs, including five physician assistant schools and two anesthesiologist assistant schools. The Regenerative Bioscience major curriculum will be well aligned with professional schools, making program graduates attractive candidates. In addition, the Regenerative Bioscience major will have a biomedical focus spanning from tissue engineering to biomedical imaging that will make students even more competitive for professional school entry. Students majoring in Regenerative Bioscience would also be excellent candidates for careers in the more than 400 Georgia hospitals and clinics, hundreds of veterinary practices, and the allied health professions in the state, nationally, and internationally.

UGA is uniquely qualified to offer a Regenerative Bioscience major and to train students in this discipline with seven core faculty with regenerative bioscience expertise in the Animal and Dairy Science (ADS) department within CAES. This multi-disciplinary group brings together expertise in stem cell biology, cell therapy, gene therapy, tissue engineering, biomaterials, and developmental biology. The ADS regenerative bioscience faculty have been highly invested in providing educational and training opportunities for undergraduate students through the development of regenerative bioscience-related courses and by engaging students in undergraduate research. The development of a Regenerative Bioscience major will provide a more formalized and comprehensive means to train students in regenerative bioscience and will likely attract new students to CAES and UGA. Students enrolled in this major can tailor the program to emphasize either human or animal health, and the regenerative bioscience and animal science faculty are uniquely qualified to provide students with a well-rounded education in both human and animal physiology and health.

Curriculum in the Regenerative Bioscience major will provide necessary background information on biological and physiological processes, including normal development, homeostasis, metabolism, and the molecular and cellular repair of tissues and organ systems in disease and injury states. Students will understand current and emerging concepts in regenerative bioscience from basic to translational science and how these paradigms are being used to treat complex diseases and injuries. Students will gain an in-depth understanding of cell therapy and cell manufacturing approaches, gene editing tools used to alter disease progression, tissue engineering and bioengineering of novel therapies, and the

development of medical devices and novel diagnostics. Students will become familiar with the current state of the regenerative bioscience industry and the process of bringing new products to market. The program will include applied- and experiential-learning opportunities through hands-on research and laboratory experience where students will develop key critical thinking and problem-solving skills. Students graduating with a Bachelor's of Science (B.S.) in Regenerative Bioscience will know how to design experiments using hypothesis-driven approaches, interpret and analyze data using statistical techniques, provide and explain visualizations of data, and use critical thinking to solve complex research problems. Students who complete this major will also have strong communication skills, both written and verbal, and will be prepared to be effective communicators in their chosen profession.

With this new major, the department believes a large pool of both in-state and out-of-state students will be attracted to UGA. At this time, no other universities in the state of Georgia offer a Regenerative Bioscience major, therefore it is anticipated that this major will attract in-state students interested in this field to UGA. Furthermore, only two other regenerative bioscience-related programs are offered at a university outside of Georgia; therefore it is expected that out-of-state students will be attracted to the Regenerative Bioscience major at UGA. The department also anticipates that many students interested in pursuing health or research related fields that are currently enrolled in other programs at UGA would be able to take advantage of the unique courses offered through the Regenerative Bioscience major.

13. Accreditation[^]: Describe disciplinary accreditation requirements associated with the program (if applicable, otherwise indicate not applicable).

Not applicable.

14. Specify **SACSCOC** or other accreditation organization requirements[^].

Mark all that apply.

- Substantive change requiring notification only ¹
- Substantive change requiring approval prior to implementation ²
- Level Change ³
- None

B. STRATEGIC PLAN

15. How does the program align with your institutional mission and function[^]?

If the program does not align, provide a compelling rationale for the institution to offer the program.

The development of a Regenerative Bioscience major fits well with both the mission of the Animal and Dairy Science (ADS) department and with UGA's institutional mission.

A major mission of the ADS department is "to recruit additional students and provide scholarships for a critical mass of high quality and diverse individuals to educate and release into the job market for technical and professional positions in the food animal production, veterinary, biomedical, and biotechnological fields." The primary goals of the Regenerative Bioscience major are to inspire and educate the next generation of highly qualified regenerative bioscience innovators and to support their

¹ See page 22 (Requiring Notification Only) of [SACSCOC Substantive Change Policy and Procedures document](#).

² See page 17 (Requiring Approval Prior to Implementation) of [SACSCOC Substantive Change Policy and Procedures document](#).

³ See page 3 (Level Change Application) of [SACSCOC Seeking Accreditation at a Higher or Lower Degree Level document](#) for level change requirements.

transition to a rewarding career in veterinary, biomedical, and biotechnological fields. This program aims to recruit a highly inclusive group of students at the precollegiate and collegiate levels and will prioritize the recruitment of students across diverse backgrounds.

The Regenerative Bioscience major strongly aligns with UGA's institutional mission and would directly contribute to UGA's *"commitment to excellence in a teaching/learning environment dedicated to serve a diverse and well-prepared student body, to promote high levels of student achievement, and to provide appropriate academic support services."*

16. *How does the program align with your institution's strategic plan and academic program portfolio?*
Identify the number of existing and new courses to be included in the program.

The Regenerative Bioscience major is consistent with Strategic Directions I and IV of the University of Georgia 2020 Strategic Plan which calls for:

I. Building on Excellence in Undergraduate Education

IV. Serving the Citizens of the State of Georgia and Beyond

Strategic Direction I emphasizes that *"Our students need to learn how to discover new information, assess its validity, and creatively synthesize and apply it to a rapidly changing world. Our students should be critical thinkers, problem solvers, and effective communicators, and good collaborators who recognize the value of opinions, ideas, and experiences of their colleagues."* These themes are central to the major learning objectives of the Regenerative Bioscience major. Students in this program will learn to work independently and collaboratively to apply problem solving and critical thinking skills to understand scientific information and challenges. Students will learn to research, analyze, and reflect on complex problems and develop solutions to real-life challenges. These skills will be critical as students enter the workforce and help solve the most pressing problems faced today by human and animal health care systems. The proposed Regenerative Bioscience major will also provide extensive opportunities for students to develop and hone effective written and verbal communication skills that will be key to their success in any profession. These skills will directly contribute to the development of excellence in undergraduate education and directly address Strategic Priority I.a which seeks to *"Prepare graduates for life-long learning through problem-solving, collaboration, and critical thought; enhance engagement across the curriculum to promote development of analysis and communication skills in the student-centered classroom."*

In addition, the proposed Regenerative Bioscience major also addresses Strategic Priority I.c which seeks to *"Provide students with experiential research, service, international, and co-operative learning opportunities, integrated with their area of study."* Students in this major will have opportunities to engage with faculty in regenerative bioscience research and research in other related fields. In this way, students can gain important skills and knowledge through integrative and applied learning. Research and laboratory experiences foster creativity and problem-solving and provide an opportunity for students to apply the scientific method in a real-world setting.

Strategic Direction IV emphasizes that UGA should *"...prepare students to be engaged citizens and leaders in the state, the nation, and the world."* Students in this major will learn about pressing public health problems in the state, nation, and world and how cutting-edge regenerative bioscience research plays a significant role in addressing these critical public health issues. Students will develop the knowledge and skills needed to play a meaningful role in addressing these issues and will be prepared to serve the state of Georgia and beyond through a number of different professional avenues (e.g., medical, industry, academic). These skills directly address Strategic Priority IV.b which seeks to *"...link research and/or classroom findings to critical issues in Georgia including economic development, the environment, and public health."*

This major fits the growing national trend in increased biological science education and is at the forefront of regenerative bioscience education in the nation. Major-related curriculum includes a combination of required courses and student-selected elective courses which incorporates 32 existing

courses and 10 new courses. In addition, students can select upper-level electives of interest from a list of 100 existing courses at UGA.

C. NEED

17. *Was this proposal and the design of the curriculum informed by talking with alumni, employers, and community representatives?*

No

Yes (If yes, use the space below to explain how their input informed this proposal)

This proposal and design were developed in consultation with alumni, employers, and community representatives. With respect to industry partners, faculty discussed their hiring needs and the type of training future employees would require to be successful. This information was integrated into the curriculum during the major development process. Faculty have since shared the new Regenerative Bioscience major application with key stake holders for comment. Please see their letters of support in Appendix IV.

18. *Does the program align with any local, regional, or state workforce strategies or plans?*

No

Yes (If yes, please explain below)

This program aligns with the growing state need for highly trained employees for the expanding Georgia bioscience and medical industries. With Georgia having over 500 bioscience facilities and being the 6th fastest-growing states in bio-related employment, it has been recognized by industry leaders and life science advocacy groups like Georgia Bio that a work force development program like the Regenerative Bioscience major is needed (see their letters of support in Appendix IV).

19. *Provide any additional evidence of regional demand for the program^ (e.g. prospective student interest survey data, community needs, letters of support from employers)*

There is considerable evidence of demand for a Regenerative Bioscience undergraduate major:

- i. Faculty performed a survey in the Animal and Dairy Science course ADSC 2300, Companion Animal Care, and received responses from 164 students spanning 7 semesters. This course was selected as it is a cross-cutting course that has student enrollment from Animal Science, Animal Health, Avian Biology, Biological Science, Dairy Science, Poultry Sciences, and other majors. Survey results showed that 39% of students would likely consider the Regenerative Bioscience major.
- ii. A recent Animal and Dairy Science Alumni survey was also performed. When asked about educational areas of emphasis, >50% noted that more emphasis should be placed on biotechnology- a key area of the Regenerative Bioscience major. When focusing only on recent graduates from 2000 to 2019, 31% of individuals went into health-related fields and 10% went into research related fields, which are professional areas that the Regenerative Bioscience major will help prepare future students.
- iii. In 2015, the Regenerative Bioscience Center (RBC) founded an RBC Fellows program. This program helps pair undergraduate students and faculty with regenerative bioscience interest, organizes an annual research symposium, and participates in community service and outreach to help educate the public about regenerative biosciences. This program typically has between 50 and 65 fellows from across the university that have a strong interest in regenerative medicine.
- iv. Over the last 8 years, the Animal and Dairy Science department has offered ADSC 3130, an Animal Biotechnology course that focuses on regenerative medicine (e.g., stem cell therapy, tissue engineering). This course has had almost 100% enrollment for the last 7 years, with many

student requests to audit or to increase class capacity. This has led to the recent development of the ADSC 2400, Introductory Regenerative Bioscience, course. This course has been well received and reached a class maximum enrollment of 30 students by the second semester it was taught (Fall 2020).

- v. Regenerative bioscience faculty regularly receive communications from regional industries requesting contact information of recent graduates or to share company contact information with recent graduates that have skills that will be taught in the Regenerative Bioscience major. The need for a trained regenerative bioscience workforce has become even more apparent as UGA RBC faculty are leaders in the National Science Foundation Engineering Research Center for Cell Manufacturing Technologies (CMA_T; *see letter of support for major in Appendix IV*). As part of this initiative, UGA is tasked with developing programs to prepare students to join the cell manufacturing workforce, which is a critical industry need. The Regenerative Bioscience major is one that would prepare students for cell manufacturing jobs.
- vi. This major will provide students with critical knowledge in biochemistry, genetics, cell biology, anatomy, and physiology in healthy and pathological states. In addition, students will gain a comprehensive understanding of cell therapy, cell manufacturing, biomaterials, tissue engineering, diagnostics, and other key areas in regenerative bioscience. These students will also gain practical experience through class related laboratories, undergraduate research, internships, and other experiential learning opportunities. Students that graduate from the Regenerative Bioscience major will have the needed knowledge and technical skills to be successful in graduate school, professional school, or in industry careers.
- vii. Several Georgia bioscience companies and organization have indicated that they support the development of a Regenerative Bioscience major which will provide highly trained, career-ready graduates with the relevant hard and soft skills to be highly employable. See letters of support attached in Appendix IV.

20. Identify the partners you are working with to create a career pipeline with this program⁴.[^]

Mark all that apply

- | | | |
|-------------------------------------------|------------------------------------------------------------|---------------------------------------------------------------|
| <input type="checkbox"/> High School CTAE | <input type="checkbox"/> Other USG institutions | <input checked="" type="checkbox"/> Professional associations |
| <input type="checkbox"/> High School STEM | <input type="checkbox"/> Other universities | <input type="checkbox"/> Other (specify below) |
| <input type="checkbox"/> Career academies | <input checked="" type="checkbox"/> Employers | Click or tap here to enter text. |
| <input type="checkbox"/> TCSG programs | <input checked="" type="checkbox"/> Community partnerships | <input type="checkbox"/> None |

⁴ Provide letters of support and explain the collaboration and how partners will share or contribute resources. (Consider internal pipeline programs – “off-ramp program” Nursing to integrated health or MOUs for pathways with other USG institutions (pipelines – keep them in state for grad school if we can)

21. Are there any competing programs at your own institution?

No

Yes (If yes, provide additional information about the competing program(s) below).

22. The program service area is used as the basis for labor market supply and demand analysis. What is the program's service area (local, regional, state, national)? If outside of the institution's traditional service area, provide a compelling rationale for the institution to offer the program. If the program's service area is a region within the state, include a map showing the counties in the defined region.

The program service area is state and national.

23. Do any other higher education institutions in close proximity offer a similar program?

No

Yes (If yes, provide a rationale for the institution to offer the program)

There are currently no undergraduate programs in regenerative bioscience in the state of Georgia, as this is the first such major in the United States. Harvard University has an undergraduate concentration in Human Developmental and Regenerative Biology, and Vanderbilt University has a Regenerative Medicine and Tissue Engineering Specialization program for undergraduate students. In Georgia, three other universities offer graduate studies in regenerative medicine: the Georgia Institute of Technology has a Bioengineering Interdisciplinary Graduate Program with a focus in Tissue Engineering and Regenerative Medicine; the Medical College of Georgia at Augusta University has a graduate program in the Department of Neuroscience and Regenerative Medicine; and Emory University has a graduate Regenerative Medicine Program. At UGA and other Georgia institutions with regenerative medicine programs, undergraduate students may have opportunities to participate in research activities relating to regenerative bioscience, but no formalized, comprehensive degrees programs are available. The implementation of a Regenerative Bioscience major at UGA will provide a distinct advantage to students interested in pursuing related graduate degrees in Georgia and beyond. These students will have greater knowledge and more specialized training in regenerative bioscience than students with more traditional science backgrounds, making the transition to regenerative bioscience or related graduate and medical programs more seamless. The lack of other regenerative bioscience undergraduate programs in the United States reflects the emerging nature of this field of study. However, this also highlights the critical need for the development and implementation of such programs to begin educating students in this fast-evolving and important field.

The Regenerative Bioscience major will be administratively housed within the Department of Animal and Dairy Science in the College of Agricultural and Environmental Sciences at UGA. This location is unique and will be advantageous for several reasons: 1) faculty members teaching regenerative bioscience-related courses in this program have national reputations, strong research programs in regenerative bioscience, and extensive teaching experience, and 2) students will have exposure to faculty with diverse human and animal expertise, thus allowing the opportunity for cross-over and collaboration between animal science and regenerative bioscience offerings.

24. Based on the program’s study area, what is the employment outlook for occupations related to the program, according to the CIP to SOC crosswalk in the Qlik **IPEDS Application**[^]. An Excel version of the CIP to SOC crosswalk is also available from [NCES](#). If data for the study area is not available, then use state- or national-level data.

- a. Click [here](#) for US and Georgia occupation projections
- b. Click [here](#) for 2026 Georgia Department of Labor data projections for the State or Georgia Workforce Board Regions in Qlik (link to GDOL Projections); data is also available through the [GDOL Labor Market Explore Website](#)
- c. For a custom Georgia geography – request a Jobs EQ report from **USG Academic Affairs office**.

Related Occupation	SOC code	Current Employment [2018]	Projected Employment [2028]	# Change	% Change	Average Annual Openings
Animal Scientist	19-1011	50	60	10	20	10
Anesthesiologist Assistant	29-1071.01					
Biological Science Teachers, Postsecondary	25-1042	720	960	240	33.3	90
Biological Scientists, All Other	19-1029	1,070	1,170	100	9.3	110
Biological Technicians	19-4021	1,500	1,700	200	13.3	190
Biomedical Engineers	17-2031	220	230	10	4.5	20
Cardiovascular Technologists and Technicians	29-2031	1,800	2,150	350	19.4	140
Clinical Laboratory Technologists and Technicians	29-2011 29-2012	11,030	13,240	2,210	20	990
Community Health Workers	21-1094	980	1,240	260	26.5	150
Dental Assistants	31-9091	8,600	9,820	1,220	14.2	1,1150
Dental Laboratory Technicians	51-9081	1,1470	1,560	90	6.1	200
Diagnostic Medical Sonographers	29-2032	2,240	2,940	700	31.3	210
Epidemiologists	19-1041	420	450	30	7.1	40
Genetic Counselors	29-9092	2,600	3,200	600	22	200

Health Technologists and Technicians, All Other	29-2099	3,050	3,920	870	28.5	320
Healthcare Practitioners and Technical Workers, All Other	29-9099	900	960	60	6.7	60
Magnetic Resonance Imaging Technologists	29-2035	1,250	1,510	260	20.8	100
Medical Appliance Technicians	51-9082	410	510	100	24.4	70
Medical Assistants	31-9092	24,730	33,270	8,540	34.5	4,050
Medical Records and Health Information Technicians	29-2072	5,940	7,070	1,130	19	530
Medical Scientists, Except Epidemiologists	19-1042	1,570	1,860	290	18.5	180
Nuclear Medicine Technologists	29-2033	610	730	120	19.7	50
Nurse Practitioners	29-1171	6,260	8,850	2,590	41.4	660
Nursing Assistants	31-1131	37,070	42,630	5,560	15	5,020
Ophthalmic Laboratory Technicians	29-2057	640	710	70	10.9	90
Pharmacists	29-1041	10,460	11,730	1,270	12.1	630
Pharmacy Technicians	29-2052	12,300	14,940	2,640	21.5	1,360
Physical Therapists	29-1123	5,180	7,030	1,850	35.7	440
Physician Assistants	29-1071	3,530	5,080	1,550	43.9	400
Physicians and Surgeons, All Other	29-1229 29-1249	11,540	13,560	2,020	17.5	570
Radiologic Technologists	29-2034	5,960	7,160	1,200	20.1	480
Registered Nurses	29-1141	77,460	94,880	17,420	22.5	6,340
Surgical Technologists	29-2055	4,440	5,310	870	19.6	480
Veterinarians	29-1131	2,320	3,210	890	38.4	200
Veterinarian Assistants and Laboratory Animal Caretakers	31-9096	1,470	2,120	650	44.2	360
Veterinary Technologist and Technicians	29-2056	3,010	4,330	1,320	43.9	430

25. Using IPEDS data, list the supply of graduates in the program and related programs in the service area.[^]

Similar or Related Programs	CIP Code	Supply ¹	Competitor Institutions ²
N/A (No similar or related programs)			

¹ Supply = Number of program graduates last year within the study area

² Competitors = List other institutions that offer this program or a similar program in the area (see [Question 23](#))

26. Based on the data provided in questions [24](#) and [25](#), discuss how this program will help address a need or gap in the labor market?

The aging population of the United States has led to a greater need for regenerative bioscience professionals [2]. By the year 2034, the American population that is over the age of 65 will be greater than the population under age 18. This aged population is expected to increase the rates of chronic illness and diseases such as Alzheimer’s disease, diabetes, and cancer. In addition, improvements in medical health care have resulted in a shift in medicine from treatments that limit disease and injury to treatments that can regenerate or replace damaged and lost tissues. These combined factors have led to an increasing demand for health professionals and professionals in the therapeutics and diagnostics development industries with significant knowledge in regenerative biosciences. The most recent data from the US Department of Labor shows a “much faster than average” growth rate (4.5% to 43.9%) in many of the professions that would be target vocations for students graduating from the proposed Regenerative Bioscience major than the average 5% U. S. jobs growth rate (**Table 1**).

27. Using data from **O*-Net**, identify the average salary for the related occupations identified in question 24. Then list at least three technical skills and three Knowledge, Skills and Abilities (KSAs) associated with the related occupations. This information can be found using at onetonline.org. (Standard Occupation Code = SOC)

	SOC Code (6 digit)	Average Salary (O-Net data)	Occupation specific technology skills & KSAs
Animal Scientist	19-1011	\$63,490	<p>Technology Skills: Analytical or scientific software, Office suite software, Presentation software</p> <p>Knowledge: Biology, Chemistry, Mathematics</p> <p>Skills: Science, Critical Thinking, Reading Comprehension</p> <p>Abilities: Inductive Reasoning, Oral Expression, Written Comprehension</p>

Anesthesiologist Assistant	29-1071.01	\$115,390	<p>Technology Skills: Medical software, Office Suite software, Spreadsheet Software</p> <p>Knowledge: Medicine and Dentistry, Chemistry, Mathematics</p> <p>Skills: Active Listening, Reading Comprehension, Critical Thinking</p> <p>Abilities: Inductive Reasoning, Oral Comprehension, Written Comprehension</p>
Biological Science Teachers, Postsecondary	25-1042	\$85,600	<p>Technology Skills: Analytical or scientific software, Computer based training software, Word Processing Software</p> <p>Knowledge: Biology, Chemistry, Mathematics</p> <p>Skills: Speaking, Instructing, Active Learning</p> <p>Abilities: Oral Expression, Written Comprehension, Written Expression</p>
Biological Scientists, All Other	19-1029	\$85,290	No Data
Biological Technicians	19-4021	\$46,340	<p>Technology Skills: Analytical or scientific software, Presentation software, Spreadsheet Software</p> <p>Knowledge: Biology, Chemistry, Mathematics</p> <p>Skills: Science, Critical Thinking, Reading Comprehension</p> <p>Abilities: Inductive Reasoning, Oral Comprehension, Oral Expression</p>
Biomedical Engineers	17-2031	\$92,620	<p>Technology Skills: Analytical or scientific software, Computer aided design CAD software, Medical Software</p> <p>Knowledge: Biology, Computers and Electronics, Mathematics</p> <p>Skills: Critical Thinking, Reading Comprehension, Active Listening</p>

			Abilities: Inductive Reasoning, Oral Comprehension, Oral Expression
Cardiovascular Technologists and Technicians	29-2031	\$59,100	Technology Skills: Data base user interface and query software, medical software, spreadsheet software Knowledge: English Language, Medicine and Dentistry, Computers and Electronics Skills: Active Listening, Critical Thinking, Reading Comprehension, Monitoring Abilities: Deductive Reasoning, Oral Comprehension, Oral Expression
Clinical Laboratory Technologists and Technicians	29-2011 29-2012	\$54,180	Technology Skills: Medical software, Office suite software, spreadsheet software Knowledge: Biology, Medicine and Dentistry, Chemistry Skills: Active Listening, Critical Thinking, Reading Comprehension Abilities: Inductive Reasoning, Oral Comprehension, Written Comprehension
Community Health Workers	21-1094	\$42,000	Technology Skills: Data base user interface and query software, Medical software, spreadsheet software Knowledge: Education and Training, Medicine and Dentistry, English Language Skills: Active Listening, Speaking, Writing Abilities: Oral Expression, Oral Comprehension, Written Comprehension
Dental Assistants	31-9091	\$41,180	Technology Skills: Medical software, Office Suite software, spreadsheet software Knowledge: Medicine and Dentistry, English Language, Education and Training Skills: Active Listening, Speaking, Reading Comprehension Abilities: Oral Expression, Oral Comprehension, Written Comprehension

Dental Laboratory Technicians	51-9081	\$42,110	<p>Technology Skills: Computer aided design CAD software, Data base user interface and query software</p> <p>Knowledge: Production and Processing, Medicine and Dentistry, Design</p> <p>Skills: Reading Comprehension, Critical Thinking, Active Learning</p> <p>Abilities: Arm-Hand steadiness, control precision, visualization</p>
Diagnostic Medical Sonographers	29-2032	\$75,920	<p>Technology Skills: Data base user interface and query software, Medical Software, Spreadsheet software</p> <p>Knowledge: English Language, Medicine and Dentistry, Clerical</p> <p>Skills: Reading Comprehension, Critical Thinking, Active Listening</p> <p>Abilities: Oral comprehension, oral expression, written comprehension</p>
Epidemiologists	19-1041	\$74,560	<p>Technology Skills: Analytical or scientific software, Spreadsheet software, Presentation Software</p> <p>Knowledge: English Language, Medicine and Dentistry, Biology</p> <p>Skills: Reading Comprehension, Critical Thinking, Science</p> <p>Abilities: Oral comprehension, written comprehension, Inductive Reasoning</p>
Genetic Counselors	29-9092	\$85,700	<p>Technology Skills: Analytical or scientific software, Spreadsheet software, Medical Software</p> <p>Knowledge: Biology, Medicine and Dentistry, Therapy and Counseling</p> <p>Skills: Reading Comprehension, Critical Thinking, Active Listening</p> <p>Abilities: Oral comprehension, Oral expression, Written comprehension</p>

Health Technologists and Technicians, All Other	29-2099	\$44,090	No Data
Healthcare Practitioners and Technical Workers, All Other	29-9099	\$51,840	No Data
Magnetic Resonance Imaging Technologists	29-2035	\$74,690	Technology Skills: Spreadsheet software, Medical Software, Word Processing Software Knowledge: Biology, Medicine and Dentistry, Computers and Electronics Skills: Reading Comprehension, Active Listening, Speaking Abilities: Oral comprehension, Oral expression, Written comprehension
Medical Appliance Technicians	51-9082	\$41,750	Technology Skills: Computer aided design CAD software, medical software, spreadsheet software Knowledge: Production and Processing, Mechanical, Design Skills: Active Listening, Speaking, Reading Comprehension Abilities: Oral comprehension, Arm-hand steadiness, Deductive Reasoning
Medical Assistants	31-9092	\$35,850	Technology Skills: Medical software, Office Suite software, Operating System software Knowledge: Medicine and Dentistry, Clerical, Computers and Electronics Skills: Active Listening, Speaking, Reading Comprehension Abilities: Oral comprehension, Oral Expression, Written comprehension

Medical Records and Health Information Technicians	29-2072	\$44,090	Technology Skills: Categorization or classification software, Data base user interface and query software, Medical software
Medical Scientists, Except Epidemiologists	19-1042	\$91,510	Technology Skills: Analytical or scientific software, Data base user interface and query software, Presentation software Knowledge: Biology, Medicine and Dentistry, Chemistry Skills: Critical thinking, Science, Reading Comprehension Abilities: Oral comprehension, Written comprehension, Inductive/Deductive Reasoning
Nuclear Medicine Technologists	29-2033	\$79,590	Technology Skills: Medical Software, Presentation software, Spreadsheet software Knowledge: Biology, Medicine and Dentistry, Physics Skills: Critical thinking, Active Listening, Speaking Abilities: Oral comprehension, Oral Expression, Information Ordering
Nurse Practitioners	29-1171	\$111,680	Technology Skills: Medical Software, Presentation software, Spreadsheet software Knowledge: Psychology, Medicine and Dentistry, Therapy and Counseling Skills: Critical thinking, Active Learning, Active Listening, Reading Comprehension Abilities: Oral comprehension, Oral Expression, Inductive Reasoning
Nursing Assistants	31-1131	\$30,850	Technology Skills: Medical Software, Accounting software, Spreadsheet software Knowledge: Customer and Personal Service, Medicine and Dentistry, Public Safety and Security

			<p>Skills: Active Listening, Monitoring, Social Perceptiveness</p> <p>Abilities: Oral comprehension, Oral Expression, Speech Recognition</p>
Ophthalmic Laboratory Technicians	29-2057	\$37,940	<p>Technology Skills: Medical Software, Accounting software, Spreadsheet software</p> <p>Knowledge: Customer and Personal Service, Medicine and Dentistry, Mathematics</p> <p>Skills: Active Listening, Reading Comprehension, Social Perceptiveness</p> <p>Abilities: Oral comprehension, Oral Expression, Speech Clarity</p>
Pharmacists	29-1051	\$128,710	<p>Technology Skills: Analytical or scientific software, Medical Software, Spreadsheet software</p> <p>Knowledge: Customer and Personal Service, Medicine and Dentistry, Biology</p> <p>Skills: Reading Comprehension, Active Listening, Critical Thinking</p> <p>Abilities: Oral comprehension, Oral Expression, Written Comprehension</p>
Pharmacy Technicians	29-2052	\$35,100	<p>Technology Skills: Data base user interface and query software, Medical Software, Spreadsheet software</p> <p>Knowledge: Customer and Personal Service, Medicine and Dentistry, Mathematics</p> <p>Skills: Reading Comprehension, Active Listening, Critical Thinking</p> <p>Abilities: Oral comprehension, Oral Expression, Written Comprehension</p>
Physical Therapists	29-1123	\$91,010	<p>Technology Skills: Medical Software, Spreadsheet software, Word Processing Software</p>

			<p>Knowledge: Customer and Personal Service, Medicine and Dentistry, Education and Training</p> <p>Skills: Reading Comprehension, Active Listening, Critical Thinking</p> <p>Abilities: Oral comprehension, Oral Expression, Written Comprehension</p>
Physician Assistants	29-1071	\$115,390	<p>Technology Skills: Medical Software, Spreadsheet software, Word Processing Software</p> <p>Knowledge: Medicine and Dentistry, Biology, Therapy and Counseling</p> <p>Skills: Reading Comprehension, Active Listening, Critical Thinking</p> <p>Abilities: Oral comprehension, Oral Expression, Deductive Reasoning</p>
Physicians and Surgeons, All Other	29-1229 29-1249	\$208,000+	No Data
Radiologic Technologists	29-2034	\$61,900	<p>Technology Skills: Medical Software, Spreadsheet software, Presentation Software</p> <p>Knowledge: Customer and Personal Service, Medicine and Dentistry, Education and Training</p> <p>Skills: Reading Comprehension, Active Listening, Critical Thinking</p> <p>Abilities: Oral comprehension, Oral Expression, Deductive Reasoning</p>
Registered Nurses	29-1141	\$75,330	<p>Technology Skills: Medical Software, Office Suite software, Word Processing Software</p> <p>Knowledge: Customer and Personal Service, Medicine and Dentistry, Education and Training</p> <p>Skills: Active Listening, Social Perceptiveness, Speaking</p>

			Abilities: Oral comprehension, Oral Expression, Deductive Reasoning
Surgical Technologists	29-2055	\$49,710	Technology Skills: Medical Software, Presentation software, Spreadsheet Software Knowledge: Customer and Personal Service, Medicine and Dentistry, Education and Training Skills: Active Listening, Monitoring, Critical Thinking Abilities: Oral comprehension, Speech Recognition, Problem Sensitivity
Veterinarians	29-1131	\$99,250	Technology Skills: Medical Software, Office Suite software, Spreadsheet Software Knowledge: Biology, Medicine and Dentistry, Mathematics Skills: Active Listening, Reading Comprehension, Critical Thinking Abilities: Oral comprehension, Oral Expression, Written Comprehension
Veterinarian Assistants and Laboratory Animal Caretakers	31-9096	\$29,930	Technology Skills: Medical Software, Presentation software, Spreadsheet Software Knowledge: Biology, Medicine and Dentistry, Customer and Personal Service Skills: Active Listening, Reading Comprehension, Critical Thinking Abilities: Oral comprehension, Oral Expression, Written Comprehension
Veterinary Technologist and Technicians	29-2056	\$36,260	Technology Skills: Medical Software, Presentation software, Spreadsheet Software Knowledge: Biology, Medicine and Dentistry, Customer and Personal Service Skills: Active Listening, Reading Comprehension, Critical Thinking Abilities: Oral Expression, Information Ordering, Deductive Reasoning

Notes:

28. Using **GOSA Earning and Learnings data**, what is the typical salary range 5 years after graduation from the program?

Biological and Biomedical Sciences:

Average Salary	75 th Percentile	50 th Percentile	25 th Percentile
1 year after graduation	\$35,633	\$25,639	\$16,744
5 years after graduation	\$65,012	\$46,180	\$31,765

Health Professions and Related Programs:

Average Salary	75 th Percentile	50 th Percentile	25 th Percentile
1 year after graduation	\$66,092	\$57,090	\$44,303
5 years after graduation	\$77,982	\$62,364	\$45,381

Provide any additional comments, if needed:

Graduates from the Regenerative Bioscience program will be qualified to pursue careers in both the Biological and Biomedical Science and Health Profession industries as well as pursuing graduate and professional degrees.

29. Based on the data compiled and analyzed for this section (see Section C: Need), what is the job outlook for occupations filled by students with this degree?^

Georgia has a growing need for highly trained professionals in the area of regenerative biosciences with the more than 570 bioscience facilities [1] and 400 hospitals [3] in the state. The Georgia bioscience industry currently employs nearly 24,000 professionals in biotechnology, testing laboratories, medical devices and diagnostics, pharmaceuticals, and many other related sectors (**Figure 1**). Top employers in the state of Georgia include major government agencies such as the U.S. Centers for Disease Control and Prevention (>8,500 employees), human and animal health companies such as Baxter International (>1,5000 employees) and Boehringer Ingelheim (>1,700 employees), and diagnostic laboratories such as Quest Diagnostics (>1,000 employees). Georgia is primed to grow over the next 7 years in the bioscience area with major growth projected in professions such as medical scientists (18.5% increase in jobs), biological technicians (13.3% increase in jobs), and medical and clinical laboratory technologists (20% increase in jobs; **See table in Question 24**). With Georgia Colleges and Universities receiving 7,232 grants and \$3.1 billion in National Institutes of Health (NIH) funding, the need for regenerative bioscience professionals to work in college and university based research continues to grow [3]. Georgia is also home to hundreds of state of the art public, private, and military

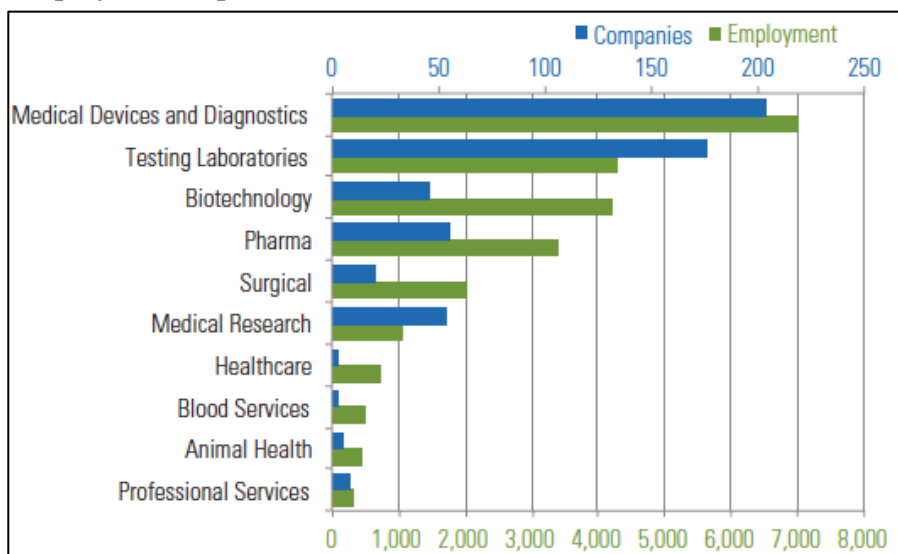


Figure 1. Employment by Sector for Georgia's Bio Industry. [1]

hospitals, treatment facilities, and rehabilitation centers, many of which are world renowned centers of excellence [3]. Over 238,000 healthcare professionals work in the state of Georgia in 61 occupations including medical and clinical laboratory technicians, physical therapists, nurses, physicians, pharmacists, dentists, and other related fields. Some of the largest health professional employers include Northside Hospital (8,000 employees), Northeast Georgia Medical Center (6,500 employees), and Grady Health Systems/Memorial Hospital (5,000 employees). The most recent Georgia Power Community and Economic Development report projected significant job growth in regenerative bioscience-related health professions, with jobs such as physical therapists (26%), registered nurses (16%), and physicians and surgeons (13%) being areas of rapid growth [3]. The medical enterprise is expanding with the building of recent hospitals such as Northside Cherokee (\$250 million; 2017) that include a cancer institute, spine center, and specialized surgical services in robotics, neurology, and neonates. In addition, Georgia hospitals are developing specialized centers of excellence like the Emory Proton Therapy Center, part of the Winship Cancer Institute that recently opened in 2016. The state of Georgia and industry partners continue to invest in the growing Georgia health initiative. This proposed program will provide students with the knowledge and skills to participate in a range of regenerative bioscience careers and to successfully compete for highly competitive professional school positions.

References:

1. Power, G., *Bioscience Industry*. 2016. p. 21.
2. Bureau, U.S.C. *The U.S. Joins Other Countries With Large Aging Populations*. 2018 October 8th, 2019 [cited 2020 August, 6th 2020]; Available from: <https://www.census.gov/library/stories/2018/03/graying-america.html>.
3. Power, G. *Georgia: Center of the Southeastern Healthcare Ecosystem*. 2016 [cited 2020 August 6, 2020]; Available from: <https://www.selectgeorgia.com/resources/publications/healthcare-industry/>.

CURRICULUM

30. Enter the number of credit hours required to graduate^

120

31. Are you requesting a credit hour requirement waiver (either below or above traditional credit hour length requirements as prescribed by the University System of Georgia? See section 2.3.5 (Degree Requirements) of the USG Board of Regents Policy Manual [here](#) for more information).

No

Yes (If yes, explain the rationale for the request in the space below)

32. Related to SACSCOC accreditation, specify if the program format of the proposed program is a^:

Format (Check 1)	50% or more of the program is delivered online
<input checked="" type="checkbox"/> Combination of on-campus and online	<input type="checkbox"/> Yes
<input type="checkbox"/> Combination of off-campus and online	<input type="checkbox"/> Yes
<input type="checkbox"/> Hybrid, combination delivery	<input type="checkbox"/> Yes

33. Is the program synchronous or asynchronous?⁵ Mark one of the options below.

Synchronous

The majority of courses are offered at scheduled, pre-determined times with students connecting to a virtual room or location and interacting with faculty and fellow students via web/video conferencing platform.

Asynchronous

34. For associate's, Nexus, and bachelor's degree proposals, which **High Impact Practices**⁶ (HIPs) will faculty embed into the program? Mark all that apply.

First-Year Experiences

Common Intellectual Experiences

Learning Communities

Writing-Intensive Courses

Collaborative Assignments and Projects

Undergraduate Research

Diversity/Global Learning

ePortfolios

Service Learning, Community Based Learning

Internships

Capstone Courses and Projects

35. Discuss how HIPs will be embedded into the program? Your discussion should provide specific examples and include whether the HIP is required or an optional component. It should also indicate at what point the experience is offered or required.

(i.e. "Students will be required to participate in an externship during their third year of enrollment, in order to develop skills in... etc.").

The goal of the Regenerative Bioscience major is to train the next generation of problem-solvers who possess the knowledge and skills necessary to advance to professional opportunities aimed at improving human and animal health. High Impact Practices (HIPs) will be embedded into the program.

First-Year Experiences and Diversity/Global Learning: This major will include the High Impact Practice UGA-wide degree requirements including a First-Year Odyssey Seminar taught by tenure-track faculty and a Cultural Diversity requirement.

Collaborative Assignments and Projects: Students will be required to participate in collaborative assignments and projects in ADSC 2400*, ADSC 3130*, ADSC 3330*, ADSC 4420*, and ADSC 4950* through both oral presentations and written assignments. Students who complete this major will have strong communication skills, both written and verbal, and will be prepared to be effective communicators in their chosen profession.

Undergraduate Research: The program will include applied- and experiential-learning opportunities through hands-on research and laboratory experience where students will develop key critical thinking and problem-solving skills. All students in the Regenerative Bioscience program will be required to take 3-4 hours of either undergraduate research credit or an approved laboratory class. Undergraduate research and laboratory courses will teach students skills such as designing experiments using

⁵ See SACSCOC Handbook for Institutions Seeking Initial Accreditation [here](#).

⁶ See Kuh (2008). High-Impact Practices: What They Are, Who Has Access to Them, and Why They Matter. *Association of American Colleges and Universities*, 14(3), 28-29).

hypothesis-driven approaches, interpreting and analyzing data using statistical techniques, providing and explaining visualizations of data, and using critical thinking to solve complex research problems.

Capstone Course: In their fourth year, all students will complete a capstone course (ADSC 4950*) and will be required to write a research proposal. In the research proposal, students will apply knowledge and skills acquired throughout the program to develop a potential therapeutic or diagnostic that can be used to treat or evaluate a human or animal disease or injury. Regenerative bioscience courses will be taught by faculty who have extensive research and teaching experience in the field and that can provide students with practical, real-world knowledge and skills.

** A course change to RBIO will be submitted upon approval of the major and prefix*

36. *Does the program take advantage of any USG initiatives?*

Mark all that apply, and provide a letter of support from applicable initiatives' leadership.

eCampus

Georgia Film Academy

FinTECH

Other: Specify Initiative Here

37. [^]For associate's, Nexus, and bachelor's degree proposals, list the specific occupational technical skills, and KSAs identified in question 27 and show how they related to the program learning outcomes. Insert more rows as needed.

Complete this chart for the upper division or major curriculum only.

Alignment of Occupational KSAs ¹	Student Learning Outcome (s)	Direct Measure (s)	Data Source
Knowledge: Biology, Chemistry	1) Students demonstrate knowledge in genetics, cell biology, anatomy, and physiology in healthy humans and animals.	1) Comprehensive Knowledge Exam 2) Capstone Project 3) Student Evaluation in Undergraduate Research	[1] , [2]
Knowledge: Biology, Medicine and Dentistry, Chemistry	2) Students understand molecular, cellular, and organismal pathophysiology of disease and injury in humans and animals and basic diagnostic tools.	1) Comprehensive Knowledge Exam 2) Capstone Project 3) Student Evaluation in Undergraduate Research	[1] , [2]
Knowledge: Biology, Medicine and Dentistry, Chemistry Skills: Science, Critical Thinking, Reading Comprehension, Active Listening, Active Learning Abilities: Inductive Reasoning, Deductive Reasoning, Written Comprehension	3) Students explain and apply regenerative bioscience approaches to treat disease and injury in humans and animals, including the development of diagnostics and therapeutics from concept, in vitro testing, pre-clinical testing, and clinical applications.	1) Comprehensive Knowledge Exam 2) Capstone Project 3) Student Evaluation in Undergraduate Research 4) Oral presentations in ADSC 2400*, ADSC 3330*, ADSC 4420* 5) Oral presentation and written assignments in ADSC 3130 and ADSC 4950*	[1] , [2]
Knowledge: Biology, Medicine and Dentistry, Chemistry Skills: Science, Critical Thinking, Reading Comprehension, Active Listening, Active Learning Abilities: Inductive Reasoning, Deductive Reasoning, Written Comprehension, Information Ordering	4) Students apply problem solving and critical thinking skills to understand scientific information and challenges and apply the scientific method.	1) Comprehensive Knowledge Exam 2) Capstone Project 3) Student Evaluation in Undergraduate Research 4) Oral presentations in ADSC 2400*, ADSC 3330*, ADSC 4420* 5) Oral presentation and written assignments in ADSC 3130 and ADSC 4950*	[1] , [2]
Technology Skills: Analytical or scientific software, Office suite	5) Students demonstrate technical knowledge of basic regenerative	1) Comprehensive Knowledge Exam	[1] , [2]

software, Spreadsheet software Knowledge: Biology, Medicine and Dentistry, Chemistry Skills: Science, Critical Thinking, Reading Comprehension Abilities: Inductive Reasoning, Deductive Reasoning, Written Comprehension	bioscience research and skills in data and statistical analysis, interpretation, and explanation.	2) Capstone Project 3) Student Evaluation in Undergraduate Research	
Technology Skills: Presentation software Knowledge: Biology, Medicine and Dentistry, Chemistry Skills: Science, Reading Comprehension, Speaking Abilities: Oral comprehension, Oral Expression, Written Comprehension	6) Students demonstrate scientific literacy and communication (interpersonal, verbal, and written) skills necessary for entering the workforce.	1) Oral presentations in ADSC 2400*, ADSC 3330*, ADSC 4420* 2) Oral presentation and written assignments in ADSC 3130 and ADSC 4950* 3) Student Evaluation in Undergraduate Research	[1] , [2]

¹ Direct measures may include assessments, HIPs, exams, etc.

38. For associate's, Nexus, and bachelor's degree proposals, fill in the table below to demonstrate the link between the **learning outcomes** and NACE **career ready competencies**. Insert more rows as needed.

Career Ready Competencies (NACE)	Student Learning Outcomes	Direct Measure (s) ¹
Critical Thinking/Problem Solving	<ul style="list-style-type: none"> ○ Make decisions and solve problems using sound, inclusive reasoning and judgement ○ Gather and analyze information from a diverse set of sources and individuals to fully understand a problem ○ Students apply problem solving and critical thinking skills to understand scientific information and challenges and apply the scientific method 	<p>1) HIP: Senior Capstone Project Students will be required to write a research proposal that will allow students to apply regenerative bioscience approaches to develop a potential therapeutic or diagnostic that can be used to treat or evaluate a human or animal disease or injury. Students will utilize problem solving and critical thinking skills and apply the scientific method to devise an experimental plan that encompasses diagnostics, pre-clinical, and clinical applications of a potential regenerative therapy.</p> <p>2) HIP: Undergraduate Research Students will participate in undergraduate research or a laboratory course that will require students to think critically about</p>

		scientific problems and apply the scientific method to solve them. Each semester, supervisors will fill out an evaluation for each student and provide a rating of student skills, including the ability to utilize critical thinking/problem solving skills.
Oral/Written Communications	<ul style="list-style-type: none"> ○ Understand the importance of and demonstrate verbal, written, and non-verbal/body language abilities ○ Employ active listening, persuasion, and influencing skills ○ Communicate in a clear organized manner so that others can effectively understand 	<p>1) HIP: Collaborative Assignments and Projects Oral and/or written projects will be required in ADSC 2400*, ADSC 3130*, ADSC 3330*, ADSC 4420*, and ADSC 4950*.</p>
Team Work/ Collaboration	<ul style="list-style-type: none"> ○ Listen carefully to others, taking time to understand and ask appropriate questions without interrupting ○ Effectively manage conflict, interact with and respect diverse personalities and meet ambiguity with resilience ○ Collaborate with other to achieve common goals 	<p>1) HIP: Collaborative Assignments and Projects Oral and/or written projects will be required in ADSC 2400*, ADSC 3130*, ADSC 3330*, ADSC 4420*, and ADSC 4950*.</p> <p>Students will be required to work in groups and collaborate for all oral projects and presentations.</p>
Digital Technology	<ul style="list-style-type: none"> ○ Navigate change and be open to learning new technologies ○ Use technology to improve efficiency and productivity of their work ○ Manipulate information, construct ideas, and use technology to achieve strategic goals. 	<p>1) HIP: Collaborative Assignments and Projects Oral and/or written projects will be required in ADSC 2400*, ADSC 3130*, ADSC 3330*, ADSC 4420*, and ADSC 4950*.</p> <p>Students will be required to use digital technology for all oral projects (e.g., Powerpoint) and written projects (e.g., Microsoft word and Endnote).</p> <p>2) Undergraduate Research Students who participate in undergraduate research learn to analyze results (e.g., Excel and other relevant scientific software) and compile a research report (e.g., Microsoft Word, Endnote). Each semester, supervisors will fill out an evaluation for each student and provide a rating of student skills, including the ability to utilize digital technology skills.</p>
Leadership	<ul style="list-style-type: none"> ○ Inspire, persuade, and motivate self and others under a shared vision 	<p>1) HIP: Senior Capstone Project Students will be required to write a research proposal that will allow students to apply regenerative bioscience approaches to develop a</p>

	<ul style="list-style-type: none"> ○ Use innovative thinking to go beyond traditional methods ○ Plan, initiate, manage, complete, and evaluate projects 	potential therapeutic or diagnostic that can be used to treat or evaluate a human or animal disease or injury. Students must use innovative thinking to develop a potential regenerative therapy and share their vision with others.
Professionalism/ Work Ethic	<ul style="list-style-type: none"> ○ Prioritize and complete tasks to accomplish organizational goals ○ Consistently meet or exceed goals and expectations ○ Have an attention to detail, resulting in few if any errors in their work 	1) HIP: Undergraduate Research Students who perform undergraduate research must exhibit reliability, attention to detail, and a strong work ethic in order to receive a passing grade for undergraduate research. Each semester, supervisors will fill out an evaluation for each student and provide a rating of student skills, including student professionalism/work ethic.
Career Management	<ul style="list-style-type: none"> ○ Display curiosity; seek out opportunities to learn ○ Seek and embrace development opportunities ○ Voluntarily participate in further education, training, or other events to support one's career 	1) Senior Exit Survey ADSC 4950*: Senior Capstone course will discuss career management opportunities such as how to apply for a job, how to write a resume or cv, and it will explore different career opportunities in regenerative bioscience-related fields. The senior exit survey will assess student reflections on career readiness. 2) Alumni Survey The Alumni Survey will assess if Regenerative Bioscience graduates felt prepared for their current occupation and how the regenerative bioscience major can be improved to enhance graduate preparedness to enter the workforce.
Global/Intercultural Fluency	<ul style="list-style-type: none"> ○ Keep an open mind to diverse ideas and new ways of thinking ○ Identify resources and eliminate barriers resulting from individual and systemic racism, inequities, and biases ○ Demonstrate flexibility by adapting to diverse environments 	1) Senior Exit Survey ADSC 4950*: Senior Capstone course will discuss diverse ideas and new ways of thinking and identify barriers resulting from individual and systemic racism, inequities, and biases in bioscience-related fields. The senior exit survey will assess student reflections on global/intercultural fluency.

¹ Direct measures may include assessments, HIPs, exams, etc.

*A course change to RBIO will be submitted upon approval of the major and prefix

39. How will learning outcomes for the program be assessed?^ Attach the curriculum map for the upper division or major curriculum.

Curriculum Map attached in **Appendix III**.

The procedure for assessing achievement of the learning objectives will utilize the following methods:

- **Comprehensive Knowledge Exam:** All seniors are required to take a regenerative bioscience capstone course (ADSC 4950*), during which a comprehensive knowledge exam will be given. The exam consists of 25 questions (5 questions each from Learning Outcomes 1-5) to test the content-based knowledge of students. The threshold expectation is that at least 75% of students will score at

least 60% on each section and will score 75% or better on the exam as a whole. Data from each Learning Outcome area and for the exam as a whole will be tracked over time to identify trends and possible deficiencies in the curriculum. These exams will allow direct assessment of Learning Outcomes 1-5. A summary of the exam data will be reviewed each year by the Curriculum Committee.

- **Capstone Project:** All students will be required to complete a Senior Capstone in Regenerative Bioscience course (ADSC 4950*). In this course, students will be required to write a research proposal that will allow students to apply regenerative bioscience approaches to develop a potential therapeutic or diagnostic that can be used to treat or evaluate a human or animal disease or injury. Students will utilize problem solving and critical thinking skills and apply the scientific method to devise an experimental plan that encompasses diagnostics, pre-clinical, and clinical applications of a potential regenerative therapy. In addition, students will be required to submit a written report and provide an oral presentation of their research proposal. The threshold expectation is that at least 75% of students will receive a grade of 78% or better on the Capstone project. This project will provide a direct assessment of Learning Outcomes 1-6.
- **Undergraduate research:** For students that participate in undergraduate research, supervisors will be asked to fill out a 10 question evaluation form for each student at the end of the semester. Supervisors will be asked to rate students using a 0 to 3 scale (1= Does not meet expectations, 2= Meets Expectations, 3= Exceeds Expectations) on their performance, knowledge, and acquisition of skills such as critical thinking/problem solving, oral/written communication skills, technical skills, professionalism/work ethic, etc. The threshold expectation is that at least 75% of students must meet expectations for at least 7 out of 10 questions (i.e., receive a combined score of at least 17 points or greater). This evaluation form will provide a direct assessment for Learning Outcomes 1-6.
- **Oral and Written Presentations:** Students will participate in oral presentations in ADSC 2400*, ADSC 3330*, and ADSC 4420* and oral and written presentations in ADSC 3130 and ADSC 4950*. The scores from these various classes will be reported and tabulated by the program coordinator. The threshold expectation is that at least 75% of students will receive an average grade of 78% or better on written and oral exams. This is a direct assessment of Learning Outcomes 3,4 and 6.

* A course change to RBIO will be submitted upon approval of the major and prefix.

40. How will outcomes for graduates of the program be assessed?

(Outcomes may include employment and placement rates, student or employer surveys, or other assessments of graduate outcomes)

Outcomes for graduates of the program will be assessed using the following methods:

- **Senior Exit Survey:** Graduating seniors will be asked to complete a Qualtrics survey to examine the quality of instruction and advising in the program, as well as to obtain information on early post-graduate career paths of students. The exit survey will include questions related to the quality and effectiveness of instruction, curricular content, advising, retention of knowledge, level of preparedness for career path, application of skills, and program satisfaction. The program coordinator will tabulate this survey data and report it to the faculty at the annual faculty meetings. This is an indirect assessment of all Learning Outcomes.
- **Alumni Survey.** Regenerative Bioscience major alumni will be asked to complete a Qualtrics survey every 3 years which assesses if they entered a graduate or professional degree program or a career, employment and placement rates, and if their education is of value in their current position. This survey will also aid in determining specific areas in the Regenerative Bioscience program that are considered

the most valuable and which should be improved or changed. The program coordinator will tabulate the results and report them to the faculty at the annual faculty meeting. This is an indirect assessment of all Learning Outcomes.

Analysis of Data and Program Assessment

The Undergraduate Curriculum Committee will be charged with the evaluation of the data accumulated from the assessment methods described previously. The committee will review the comprehensive exam scores and undergraduate research evaluation scores and develop longitudinal trend data. The scores will be evaluated for total competency as well as competency in each Learning Outcome. Trend lines over time will be developed and examined closely to identify strengths and weaknesses in the program. The committee will also evaluate the summary data of the oral and written presentations and determine if there are any deficiencies. The committee will also develop longitudinal trend data for the overall score and for each of the areas evaluated.

The program coordinator will make the senior exit survey and alumni survey data available to the committee and this data will be compared to the direct assessment methods. After review of the data from the five assessment methods, the committee will determine to what degree each Learning Outcome is being achieved. The direct methods (comprehensive exam, Capstone project, undergraduate research evaluation, oral and written presentations) will provide specific measures of the Learning Outcomes. The indirect methods (senior exit survey and alumni survey) will permit assessment of student and alumni perspectives of the program, and the degree to which the program prepares majors for the pursuit of graduate degrees or careers in the field. The report to the faculty by the committee will specifically assess each of the Learning Outcomes and if the accumulated data indicate good to excellent performance for each Learning Outcome and if that Learning Outcome is being successfully achieved. If the data does not indicate an acceptable level of attainment of a Learning Outcome, the materials will be examined in depth to attempt to assess whether this result is a function of assessment methods or legitimate deficiencies. There will also be a general evaluation of the assessment methods and suggestions for refinement or improvement of the methods. If data indicates a deficiency in the curriculum, recommendations will be made to the faculty for corrective action.

The report of the committee will be presented to the faculty and discussed at the departmental annual meeting, during a session explicitly focused on the evaluation of the results. Faculty will then be asked to develop modifications to the program in areas where the data clearly indicates a failure to meet Learning Outcomes. The faculty will also consider committee input on the effectiveness of assessment procedures and the development of improvements in the procedures where warranted.

41. List the entire course of study required to complete the academic program. ^

Include course: prefixes, numbers, titles, and credit hour requirements

Indicate the word “new” beside new courses

Include a program of study

I. Foundation Courses (9 hours)

Preferred Course(s):

ENGL 1101, English Composition I (3 hours)

ENGL 1102, English Composition II (3 hours)

MATH 1113, Precalculus (3 hours)

II. Sciences (7-8 hours)

Physical Sciences (3-4 hours)

Preferred Course(s):

*(CHEM 1211, CHEM 1211L), Freshman Chemistry I, or (CHEM 1311H, CHEM 1311L), Advanced Freshman Chemistry I (Honors) (4 hours)

*In addition to meeting upper-level course prerequisites, this course can be used to satisfy College of Agricultural and Environmental Sciences graduation requirements.

Life Sciences (3-4 hours)

Preferred Course(s):

*(BIOL 1107, BIOL 1107L), Principles of Biology I, or (BIOL 2107H, BIOL 2107L), Principles of Biology I (Honors) (4 hours)

*In addition to meeting upper-level course prerequisites, this course can be used to satisfy College of Agricultural and Environmental Sciences graduation requirements.

III. Quantitative Reasoning (3-4 hours)

Preferred Course(s):

MATH 2200, Analytical Geometry and Calculus (4 hours)

OR

MATH 2250, Calculus I for Science and Engineering (4 hours)

OR

MATH 2300H, Differential Calculus (Honors) (4 hours)

OR

(PHYS 1111, PHYS 1111L), Introductory Physics-Mechanics, Waves, Thermodynamics (4 hours)

IV. World Languages and Global Culture, Humanities and the Arts (12 hours)

Choose 9 hours from World Languages and Culture, and 3 hours from Humanities and the Arts

Preferred Course(s):

*COMM 1110, Introduction to Public Speaking (3 hours)

OR

*COMM 2150H, Perspective on Public Communication (Honors) (3hours)

*In addition to meeting upper-level course prerequisites, this course can be used to satisfy College of Agricultural and Environmental Sciences graduation requirements.

V. Social Sciences (9 hours)

Choose 3 courses from Social Sciences

Preferred Course(s):

POLS 1101, American Government (3 hours)

HIST 2111, American History to 1865 (3 hours)

OR

HIST 2112, American History Since 1865 (3 hours)

VI. Related to Major

ADSC 2400*, Introductory Regenerative Bioscience (3 hours)

(BIOL 1108, BIOL 1108L), Principles of Biology II, or (BIOL 2108H, BIOL 2108L), Principles of Biology II (Honors) (4 hours)

(CHEM 1212, CHEM 1212L), Freshman Chemistry II, or (CHEM 1312H, CHEM 1312L), Freshman Chemistry II (Honors) (4 hours)

(CHEM 2211, CHEM 2211L), Modern Organic Chemistry I, or (CHEM 2311H, CHEM 2311L), Advanced Organic Chemistry I (Honors) (4 hours)

STAT 3110, Introduction to Statistics for Life Sciences (3 hours) OR STAT 3110E, Introduction to Statistics for Life Sciences (3 hours) OR BIOS 2010, Elementary Biostatistics (4 hours)

* A course change to RBIO will be submitted upon approval of the major and prefix

Required Courses (40-43 hours)

Anatomy and Physiology (7-8 hours)

Select one of the following (4 hours):

CBIO 2200-2200L, Anatomy and Physiology I (4 hours)

CBIO 3010-3010L, Functional Human Anatomy (4 hours)

(NEW) (ADSC 3410, ADSC 3410L), Comparative Anatomy and Physiology of Domestic Animals (4 hours)

Select one of the following (3-4 hours):

CBIO 2210-2210L, Anatomy and Physiology II (4 hours)

VPHY 3100, Elements of Physiology (3 hours)

PMCY 3000, Human Physiology (4 hours)

Biochemistry and Genetics (8 hours)

BCMB 3100 or BCMB 3100E or BCMB 3100H, Introductory Biochemistry and Molecular Biology (4 hours)

GENE 3200-3200D, Genetics, or GENE 3200H, Genetics (Honors) (4 hours)

Developmental and Cell Biology (7 hours)

CBIO 3400, Cell Biology (4 hours)

ADSC 4380/6380, Food Animal Growth and Development (3 hours)

Disease and Pathology (3-4 hours)

Select one of the following:

(NEW) ADSC 4250/6250, Microbiology and Immunology of Domestic Animals (3 hours)

BCMB 4120/6120, Human Biochemistry and Disease (4 hours)

ECOL(BIOL) 4150/6150-4150L/6150L, Population Biology of Infectious Diseases (4 hours)

CBIO(MIBO)(IDIS) 4100/6100-4100D/6100D, Immunology (4 hours)

VPAT 4000/6000, On the Origins of Disease (3 hours)

Regenerative Bioscience (12 hours)

ADSC 3130*, Animal Biotechnology (3 hours)

(NEW) ADSC 3330*, Therapies for Tissue Repair and Regeneration (3 hours)

(NEW) ADSC 4420*, Engineering Living Organisms (3 hours)

(NEW) ADSC 4950*, Senior Capstone in Regenerative Bioscience (3 hours)

** A course change to RBIO will be submitted upon approval of the major and prefix*

Laboratory (3-4 hours)

3-4 hours undergraduate research with the following prefixes: ADSC, BCMB, BIOL, BTEC, CBIO, GENE, IDIS, MBIO, POUL, RBIO**, VPAT, VPHY

OR

Select one of the following:

BTEC(BCMB)(PBIO) 4000L, Methods in Biotechnology (4 hours)

BCMB 4030/6030L, Bioprocess Technology (4 hours)

BCMB 4030H, Bioprocess Technology (Honors) (4 hours)

BIOL 3110L, Basic Skills in the Laboratory (4 hours)

CBIO 3410L, Laboratory in Cellular and Developmental Biology (4 hours)

GENE 3210L, Experimental Genetics (3 hours)

GENE 3220L, Genetics Problem Solving Laboratory (3 hours)

GENE 4210L, Experimental Molecular Genetics Laboratory (3 hours)

GENE 4220L, Laboratory in Genetic Modeling (3 hours)

GENE 4240L, Experimental Microbiome Genetics Laboratory (3 hours)

MBIO 3510L, Introductory Microbiology Laboratory (3 hours)
MIBO 4600L/6600L, Experimental Microbiology Laboratory (4 hours)

*** Will be created after approval of the major and prefix*

Major Electives (9-12 hours)

Select three or more courses from the following list. Other courses may satisfy the requirement but may be selected only upon the approval of the RBIO academic advisor.

*Note: 4 hours can come from laboratory, special problems, directed readings, internships, undergraduate research, or undergraduate teaching courses with the following prefixes: ADSC, BCMB, BIOL, BTEC, CBIO, GENE, IDIS, MBIO, POUL, RBIO**, VPAT, VPHY*

ADSC 3110, Introduction to Genetics of Livestock Improvement (3 hours)
ADSC 3300, Animal Nutrition and Metabolism (3 hours)
ADSC 3400, Physiology of Reproduction in Domestic Animals (3 hours)
ADSC 3670, Companion Animal Biology and Management (3 hours)
ADSC 4150/6150, Microbial Ecology of the Rumen (3 hours)
ADSC 4400/6400-4400L/6400L, Applied Reproduction in the Horse (3 hours)
ADSC 4410/6410-6410L/6410, Applied Reproductive Management in Cattle and Swine (3 hours)
ADSC 4520/6520, Animal Cognition and Behavior (3 hours)
ARTI(PSYC)(PHIL) 3550, Introduction to Cognitive Science (3 hours)
BCMB 3433, Biology for Medicine (4 hours)
BCMB 3600, Genomics and Bioinformatics (3 hours)
BCMB 4010/6010, Biochemistry and Molecular Biology I (4 hour)
BCMB 4020/6020, Biochemistry and Molecular Biology II (3 hours)
BCMB 4030L/6030L, Bioprocess Technology (4 hours)
BCMB 4030H, Bioprocess Technology (Honors) (4 hours)
BCMB(CHEM) 4110/6110, Physical Biochemistry (3 hours)
BCMB 4120/6120, Human Biochemistry and Disease (4 hours)
BCMB 4130, Human Biochemistry II (3 hours)
BCMB(ENTO)(BTEC) 4200/6200, Biotechnology (3 hours)
BIOL 3110L, Basic Skills in the Laboratory (4 hours)
BIOL (WILD) 3700W, Animal Behavior (3 hours)
BIOL (CBIO)(VPAT) 5040/7040, Electron Microscopy (3 hours)
BTEC 3000, Ethics and Communication in Biotechnology (2 hours)
BTEC (BCMB) (PBIO) 4000L, Methods in Biotechnology (4 hours)
CBIO 3000-3000L, Comparative Vertebrate Anatomy (4 hours)
CBIO 3010-3010L, Functional Human Anatomy (4 hours)
CBIO 3050, Medical Histology (3 hours)
CBIO 3400, Cell Biology (4 hours)
CBIO 3410L, Laboratory in Cellular and Developmental Biology (4 hours)
CBIO 3600, Developmental Biology (4 hours)
CBIO 3710, Principles of Physiology (3 hours)
CBIO 3800, Neurobiology (4 hours)
CBIO 3800L, Neurobiology Laboratory (2 hours)
CBIO(MBIO)(IDIS) 4100/6100-4100D/6100D, Immunology (4 hours)
CBIO 4200, Biomedical Research in Health and Disease (3 hours)
CBIO 4200H, Honors Biomedical Research in Health and Disease (Honors) (3 hours)
CBIO 4340/6340, Biology of Aging (3 hours)
CBIO 4500/6500, Medical Parasitology (3 hours)
CBIO (PBIO) 4600/6600, Biology of Protists (3 hours)
CBIO 4730/6730, Endocrinology (3 hours)
CBIO(CSCI) 4835/6835, Introduction to Computational Biology (3 hours)
CHEM(BCMB) 4190/6190, Introduction to NMR Spectroscopy (3 hours)
ECOL 3820, Evolutionary Medicine (3 hours)

ECOL(BIOL) 4150/6150-4150L/6150L: Population Biology of Infectious Diseases (4 hours)
 GENE 3210L, Experimental Genetics (3 hours)
 GENE 3220L, Genetics Problem Solving Laboratory (3 hours)
 GENE 3800, Hard Science and Society (3 hours)
 GENE 4200/6200, Advanced Genetics (3 hours)
 GENE 4210L, Experimental Molecular Genetics Laboratory (3 hours)
 GENE 4220L, Laboratory in Genetic Modeling (3 hours)
 GENE 4240L, Experimental Microbiome Genetics Laboratory (3 hours)
 GENE(CBIO) 4310/6310, Genetic Approaches to Developmental Neuroscience (3 hours)
 GENE 4400/6400, Epigenetics (3 hours)
 GENE 4500/6500, Human Genetics (3 hours)
 GENE 4520/6520, Genetics of Industrial Micro-Organisms (3 hours)
 GENE 4540/6540, Cancer Genetics (3 hours)
 IDIS 3100, People, Parasites, and Plagues (3 hours)
 IDIS 3100H, People, Parasites, and Plagues (Honors) (3 hours)
 IDIS(POPH) 3110, Food Animal Infectious Diseases (3 hours)
 IDIS(FDNS) 4200/6200, We are What We Eat! How Your Gut Influences Your Overall Health (3 hours)
 KINS 4630, Exercise Physiology (3 hours)
 KINS 4680/6680, Integrative Cardiovascular Physiology (3 hours)
 KINS 4690/6690-4690LL/6690L, Neuromuscular Physiology (4 hours)
 KINS 5690/7690, Skeletal Muscle and Mitochondrial Physiology (3 hours)
 MATH(BINF) 4780/6780, Mathematical Biology (3 hours)
 MBIO 3000-3000L, Introductory Applied Microbiology (4 hours)
 MBIO 3500/3500E, Introductory Microbiology (3 hours)
 MBIO 3500L, Introductory Microbiology Laboratory I (1 hour)
 MBIO 3510L, Introductory Microbiology Laboratory (3 hours)
 MBIO(POPH) 4220/6220, Pathogenic Bacteriology (3 hours)
 MBIO(POPH) 4220S/6220S, Pathogenic Bacteriology (3 hours)
 MBIO 4300/6300, Genome Editing in Mammals, Plants, Insects, and Microbes (3 hours)
 MIBO 4600L/6600L, Experimental Microbiology Laboratory (4 hours)
 MBIO 4680/6680, Industrial Microbiology and Biotechnology (4 hours)
 MBIO 4700/6700, Medical Mycology (3 hours)
 MBIO 4710L/6710L, Medical Mycology Laboratory (3 hours)
 PATH 3020E, Viruses: Biology and Impact (3 hours)
 PBIO(CRSS) 4500/6500, Introduction to Gene Technology (3 hours)
 PHAR(PMCY) 4010E, Introduction to Drugs, Biologics, and Devices Regulated by the Food and Drug Administration (3 hours)
 PHRM (PMCY) 4000, The War on Cancer (3 hours)
 PHYS 4510/6510, Introduction to Magnetic Resonance Imaging (3 hours)
 PMCY 3000, Human Physiology (4 hours)
 POPH(MBIO)(IDIS) 4650/6650, Introduction to Virology (3 hours)
 POUL 3000-3000L, Avian Surgical Techniques (4 hours)
 POUL 3050, Molecular Diagnostic and Research Tools in Avian Biology (3 hours)
 POUL(BIOL) 4060/6060, Reproductive Endocrinology (3 hours)
 POUL 4175, Avian Anatomy and Physiology (3 hours)
 POUL 4300/6300, Nutritional Immunology in Health and Production (3 hours)
 PSYC 3230/3230E, Psychopathology (3 hours)
 PSYC 3230H, Psychopathology (Honors) (3 hours)
 PSYC 3810, Psychology of Health (3 hours)
 STAT 3120, Introduction to Probability for Life Sciences (3 hours)
 VPAT 3100H, Introduction to Disease (Honors) (3 hours)
 VPAT 3101, Basic Veterinary Medical Terminology (3 hours)
 VPAT 4000/6000, On the Origins of Disease (3 hours)
 VPAT 4100, Common Diseases of Production Animals (3 hours)
 VPHY 3100, Elements of Physiology (3 hours)
 WILD(ECOL)(POPH) 4575/6575, Conservation Medicine (6 hours)

** Will be created after approval of the major and prefix

General Electives (4-13 hours)

Sample Program of Study

Course #	Title	Hours
Fall Year 1		
COMM 1100	Introduction to Public Speaking	3
ENGL 1101	English Composition I	3
POLS 1101	American Government	3
CHEM 1211, CHEM 1211L	Freshman Chemistry I	4
ADSC 2400	Introductory Regenerative Bioscience <i>(A course change to RBIO will be submitted upon approval of the major and prefix)</i>	3
FYOS 1001	First-Year Odyssey Seminar	1
Total		17
Spring Year 1		
MATH 1113	Precalculus	3
ENGL 1102	English Composition II	3
CHEM 1212, CHEM 1212L	Freshman Chemistry II	4
BIOL 1107, BIOL 1107L	Principles of Biology I	4
FYOS 1001	First-Year Odyssey Seminar	1
Total		15
Fall Year 2		
Choice	Area IV, World Languages and Global Culture	3
BIOL 1108, BIOL 1108L	Principles of Biology II	4
ADSC 3410, ADSC 3410L	(Choices) NEW: Comparative Anatomy and Physiology of Domestic Animals	4
CHEM 2211, CHEM 2211L	Modern Organic Chemistry I	4
Total		15
Spring Year 2		
HIST 2111	American History to 1865	3
MATH 2250	Calculus I for Science and Engineering	4
VPHY 3100	(Choices) Elements of Physiology	3
BCMB 3100	Introductory Biochemistry and Molecular Biology	4
Choice	General Elective	1
Total		15
Fall Year 3		
Choice	Area IV, World Languages and Global Culture	3
GENE 3200-3200D	Genetics	4
ADSC 3130	Animal Biotechnology <i>(will change to ADSC(RBIO) 3130 upon approval of the major and prefix)</i>	3
BIOS 2010	Elementary Biostatistics	4
Total		14

Spring Year 3		
CBIO 3400	Cell Biology	4
ADSC 4250/6250	(Choices) NEW: Microbiology and Immunology of Domestic Animals	3
ADSC 3330	NEW: Therapies for Tissue Repair and Regeneration <i>(A course change to RBIO will be submitted upon approval of the major and prefix)</i>	3
Choice	Area IV, World Languages and Global Culture	3
Choice	Area V, Social Science	3
Total		16
Fall Year 4		
Choice	(Choices) Laboratory	3
ADSC 4420	NEW: Engineering Living Organisms <i>(A course change to RBIO will be submitted upon approval of the major and prefix)</i>	3
ADSC 4380/6380	Food Animal Growth and Development	3
Choice	Major Elective	3
Choice	General Elective	3
Total		15
Spring Year 4		
RBIO 4950	NEW: Senior Capstone in Regenerative Bioscience <i>(A course change to RBIO will be submitted upon approval of the major and prefix)</i>	3
Choice	Major Elective	3
Choice	Major Elective	3
Choice	General Elective	3
Choice	General Elective	2
Total		14
Total Degree Hours		120

D. IMPLEMENTATION

42. Provide an enrollment projection for the next four academic years[^]

	Year 1	Year 2	Year 3	Year 4
Fiscal Year (Fall to Summer)	202x-xx	202x-xx	202x-xx	202x-xx
Base enrollment [†]		20	40	55
Lost to Attrition (should be negative)		-5	-5	-5
New to the institution	10	15	30	45
Shifted from Other programs within your institution	10	15	0	0
Total Enrollment	20	45	65	95
Graduates	0	5	10	15
Carry forward base enrollment for next year	20	40	55	80

[†]Total enrollment for year 1 becomes the base enrollment for year 2

- a. Discuss the assumptions informing your enrollment estimates (i.e. for example, you may highlight anticipated recruiting targets and markets, if and how program implementation will shift enrollment from other programs at the institution, etc.)
 1. The department recently performed a survey in the Animal and Dairy Science course, ADSC 2300, Companion Animal Care, which is a freshmen and sophomore class taught both spring and fall that typically has 90 students (180 students total). The survey assessed students from 7 semesters. Of these students, 39% indicated that they would likely consider the Regenerative Bioscience major. In a given year, that would be 70 students that would consider the Regenerative Bioscience major. If half of these freshmen and sophomore students became Regenerative Bioscience majors, that would be approximately 35 students total (17 to 18 students in both the freshmen and sophomore classes).
 2. ADSC 2400, Introductory Regenerative Bioscience, another freshmen and sophomore level course which was recently taught, had an enrollment of 30 students in fall 2020. This was the maximum enrollment for the course. This course is not required for any existing major, suggesting that these students had a strong interest in regenerative biosciences. The department believes that most of these students would be interested in a Regenerative Bioscience major. Assuming that two-thirds of these students would be Regenerative Bioscience majors, that would result in approximately 20 students total (10 students in both the freshmen and sophomore classes).
 3. The RBC Fellows program currently has 65 students. However, 2 times this number of students are turned away from this program due to a lack of undergraduate research opportunities. Again, it is likely that most of the 130 students spanning freshmen to senior undergraduate students (assuming an even distribution, approximately 33 students per class) would be interested in a Regenerative Bioscience major. If even half of these students became Regenerative Bioscience majors, that would be approximately 25 students at each class level.

4. The department conservatively projects that in year 1 (FY23), 10 students will shift into the new Regenerative Bioscience major, then in year 2 (FY24), as more students at UGA become aware of the major, 15 students will shift into the new major, and then this number will likely decrease in subsequent years and most students entering the Regenerative Bioscience major will be new to the institution. Additionally, there is an estimated rate of new enrollments to UGA at 15 students for year 2, followed by an increase of 20 and 40 students in years 3 and 4 respectively.

b. If projections are significantly different than enrollment growth for the institution overall, please explain.

The projections are not significantly different than anticipated enrollment growth for the institution overall.

43. If projected program enrollment is not realized in year two, what actions are you prepared to take?

If the projected enrollment is not realized, altering the program to meet the needs of the student will be considered. The major is already designed to be flexible in that a student can vary the amount of genetics, cell biology, biochemistry, animal science, physical sciences, and engineering in their third- and fourth- year curriculum in order to satisfy their career interests. However, the department will organize a regenerative bioscience curriculum committee to reevaluate the curriculum to make this major more attractive. Moreover, annual class assessments will provide valuable information on how the program can be altered in order to attract more student interest or whether new areas of instruction will need to be developed. In addition, the ADS department has established a recruitment committee within the department. This group will be tasked to examine current recruitment methods and attempt to modify them to ensure better marketing and exposure to potential candidates for the Regenerative Bioscience major. The recruitment strategy will likely include an expanded marketing campaign and enhanced partnering with local and regional high schools.

44. Discuss the marketing and recruitment plan for the program. Include how the program will be marketed to adult learners and underrepresented and special populations of students. What resources have been budgeted for marketing the new program?

The Regenerative Bioscience major is anticipated to begin Fall 2022. The ADS department has recently established a recruitment committee within the department. This group will examine current recruitment methods and attempt to modify them to ensure better marketing and exposure to potential candidates for the Regenerative Bioscience major.

Recruitment of new students will occur within the state of Georgia and nationally via social media and targeted mailings of informative fliers and brochures to high schools. Given the relatively new nature of the field, the program anticipates developing relationships with science faculty and school counselors and visiting science classrooms at high schools throughout the state of Georgia. Inclusion of the program in high school counselor databases will help with enrollment of new students. Marketing and recruitment of undergraduate students at UGA will occur through a canvassing campaign and through the development of a website for the program.

45. Provide a brief marketing description for the program that can be used on the Georgia [OnMyLine website](#).

Regenerative bioscience is a field of study that aims to develop new ways to replace, repair, or regenerate human and animal cells, tissues, or organs from a pathologic/diseased condition. In cases of

severe injury or disease the innate healing and defense mechanisms of the body are limited and there are no effective treatments. Therefore, the goal of regenerative bioscience is to find a way to cure previously untreatable injuries and diseases.

The Bachelor of Science in Regenerative Bioscience aims to prepare graduates with the knowledge and skills necessary to advance to professional opportunities aimed at improving human and animal health. Students will be equipped with knowledge in areas such as biological and physiological processes, including normal development, homeostasis, metabolism, and the molecular and cellular repair of tissues and organ systems in disease and injury states. Students will understand current and emerging concepts in regenerative bioscience from basic to translational science and how these paradigms are being used to treat complex diseases and injuries. Students will have an in-depth understanding of cell therapy and cell manufacturing approaches, gene editing tools used to alter disease progression, tissue engineering and bioengineering of novel therapies, and the development of medical devices and novel diagnostics. Students will become familiar with the current state of the regenerative bioscience industry and the process of bringing new products to market. The program includes applied- and experiential-learning opportunities through hands-on research and laboratory experience where students will develop key critical thinking and problem-solving skills. Students will also gain relevant knowledge and skills in research, leadership, digital technology, and effective communication.

Graduates of this program will be prepared to pursue careers in

- Medical Professions
- Veterinary Professions
- Academic Professions
- Bioscience Industry Professions
- Allied Health Professions

46. If this proposal is for a Doctorate program, provide information below for at least three external and one USG reviewer of aspirational or comparative peer programs

Note: External reviewers must hold the rank of associate professor or higher in addition to other administrative titles.

Reviewer 1 Name

Reviewer 1 Title

Reviewer 1 Institution

Reviewer 1 Email

Address

Reviewer 1 Phone

Number

Reviewer 2 Name

Reviewer 2 Title

Reviewer 2 Institution

Reviewer 2 Email Address

Reviewer 2 Phone Number

Reviewer 3 Name

Reviewer 3 Title

Reviewer 3 Institution

Reviewer 3 Email Address

Reviewer 3 Phone Number

USG Reviewer Name

USG Reviewer Title

USG Reviewer Institution

USG Reviewer Email Address

USG Reviewer Phone Number

E. RESOURCES

F1. Finance^: Complete and submit the Excel budget forms and the questions below (Do not cut and paste in the excel budget template into this document, submit the Excel budget templates separately.)

47. Are you requesting a differential tuition rate for this program? (masters, doctoral, and professional programs only)

- No (Move to answer question 48)
- Yes (If yes, answer questions 47a & 47b)

a. What is the differential rate being requested? The rate below should reflect the core tuition plus the differential, i.e. the tuition rate being advertised to the student.

In-State per Semester: \$Enter Amount

Out-of-State per Semester: \$Enter Amount

b. Provide tuition and mandatory fee rates assessed by competitive/peer programs per full-time student per semester. Please complete the table below:

Institution name	Link to institution’s tuition & fee website	In-state tuition	Out-of-state tuition	In-state fees	Out-of-state fees

**There are no direct competitive/peer programs for Regenerative Bioscience, therefore Biology was selected as the closest peer program at comparator peer institutions.*

48. If existing funds are being reallocated, describe the impact on existing programs and the plan to mitigate these impacts.

No funding or instruction will be lost by other units as a result of this program. Existing faculty lines budgeted for instruction will be utilized to cover instructional costs associated with all courses. In addition, there are current courses that are being taught as part of the Animal Science (B.S.A.) major that synergize with this newly proposed major and will be included in the major course offerings.

49. If student fees are being charged (excluding mandatory fees), explain the cost and benefit to students, per fee.

N/A

50. Are there any additional financial costs that students will have to take on as part of this program, but not assessed directly by the institution? (e.g. software licenses, equipment, travel, etc.) If so, please describe these costs and what strategies you have considered to decrease the student’s financial burden?

N/A

51. How does the institution plan for and fund increased indirect costs associated with the growth in students anticipated in the proposed program? Consider costs such as student advisement, student support services, tutoring, career services, additional library materials, technology, or other infrastructure.

Indirect costs will be covered by mandatory student fees and tuition.

F2. Faculty^ – Explain your faculty and staff plan for the program

52. Discuss how existing courses may be incorporated into this new program:

a. Course Development

of total required courses in the curriculum: **15**

of existing courses to be part of the new program **127**

Net number of new courses to be developed **10**

*See **Appendix I** for a description of new courses to be developed.

c. Comment on the costs and workload related to the new course development.

The department has two recent hires, a lecturer and a tenure track assistant professor, that will be develop and teach 3 new regenerative bioscience courses (ADSC 3330*, ADSC 4420*, ADSC 4950*). Also, as a result of a recent curriculum evaluation in the Animal and Dairy Science department, two new classes (ADSC 4250/6250 and ADSC 3410/3410L) will be developed that will service both the Animal Science major and the Regenerative Bioscience major.

* A course change to RBIO will be submitted upon approval of the major and prefix

53. Explain how **current faculty and staff** will contribute to the program.^

Existing faculty lines budgeted for instruction will be utilized to cover instructional costs associated with all courses

a. *How many faculty will be re-directed to this program from existing programs?*

0

- b. If this program is approved, what will be the new teaching load and distribution of time for the current faculty members? How will existing staff be impacted?

There will be no change in teaching load for current faculty members. The department has two recent hires, a lecturer (Kinder) and a tenure track assistant professor (Yao), that will be develop and teach 3 new regenerative bioscience courses (ADSC 3330*, ADSC 4420*, ADSC 4950*). Also, as a result of a recent curriculum evaluation in the Animal and Dairy Science department, two new classes (ADSC 4250/6250 and ADSC 3410/3410L) will be developed that will service both the Animal Science major and the Regenerative Bioscience major. These courses will be developed and taught by ADS Faculty (Ryman and Callaway) as part of their normal teaching load. A series of undergraduate research classes will also be developed (RBIO 4960R, RBIO 4970R, RBIO 4980R, and RBIO 4990R) and all RB faculty will teach faculty-led undergraduate research courses (Kinder, Yao, West, Stice, Karumbaiah, Mortensen, Liu). These faculty have been teaching similar research courses with the ADSC prefix and therefore this does not represent an increase in teaching load.

- c. List the faculty that will be redirected from their current teaching load assignments to support this new program

N/A

- d. Explain who will be teaching the existing courses that are being released so faculty can teach a new program course. Additionally, please discuss the fiscal implications associated with course releases and redirections of faculty.

N/A

- e. What costs are included in your budget for course development? (Consider professional development, course development time buy out, overload pay, and re-training)

None

- f. Attach your SACSCOC roster for the proposed program. Include in parentheses the individual with administrative responsibility for the program and whether listed positions are projected new hires and/or currently vacant.

The SACSCOC Roster can be found in Appendix II.

54. Explain your plan for new faculty and staff for the program:

- a. *How many new faculty will be needed for this program over the next four years? Enter #0*

Explanation: None

55. How many new staff will be needed for this program over the next four years?

None

- a. Discuss why new or additional staff resources are needed. Consider staff needs, support services (i.e. advisement, faculty support, etc.)

N/A

F3. Facilities – complete the questions below:

56. Where will the program be offered?^ Mark all that apply

- Main campus
- Satellite campus: Specify Here
- Other: Specify Here
- 100% Online

57. Will new or renovated facilities or space be needed for this program over the next four years?

- No
- Yes (If yes, complete the table below, inserting additional rows as needed).

Capital Costs for Needed Facilities and Space

Facility/Space Name	Gross Square Footage	Start Up Costs	Ongoing Costs	Est. Occupancy Date	Funding Source
New Construction					
Renovations and Infrastructure*					
Purchases: Land, Buildings etc.					
Lease space					
TOTAL Cost		\$0	\$0		

*Include the name of the building or location being impacted and what will need to be done. Infrastructure includes new systems such as: water, electrical, IT networks, HVAC etc.

58. Discuss the impact of construction or renovation on existing campus activities and how disruptions will be mitigated. Explain how existing programs benefit from new facilities and/or space(s) and changes to existing space.

N/A

59. Will any existing programs be negatively impacted (e.g. lose classroom or office space) by proposed facility changes? If so, discuss how the impacts of these changes will be mitigated.^

Existing programs will not be negatively impacted.

60. Are any of these new facilities or major renovations listed in the table above (**Question 57**) **NOT** included in the institution-level facilities master plan?

N/A

61. Will any of the following types of space be required: instructional, fine arts, meeting, study, or dedicated office?

No (Move to Question 63).

Yes (*If yes, complete question 62. Insert additional rows as needed*).

62. Complete the table below. Specify if these spaces are existing or new in the table below.^ If new, provide the semester and year of completion.

Space	New Space (ASF)	Use Existing Space (as is) (ASF)	Use Existing Space (Renovated) (ASF)	Semester/ Year of Occupancy
Dry Labs (STEM related)		Existing (1)		
Wet Labs (STEM related)				
Dedicated Offices				
Fine Arts Spaces ¹				
Classrooms		Existing (5)		
Meeting Rooms				
Student Study Space		Existing (1)		
Other (Specify)				

¹Fine arts spaces can include theatres, recital halls, visual arts studios, performing arts centers,

recording studios, design labs, and other performance venues.

63. Are there facility needs related to accreditation?^ Are there any accreditation standards or guidelines that will impact facilities/space needs now or in the future? If so, please describe the projected impact.

None

F4. Technology

64. Identify any major equipment or technology integral to program start-up and operations. List any equipment or assets over \$5,000 (cumulative per asset) needed to start-up and run the program (insert rows as needed)

	Technology and Equipment	Start-up Costs	On-going Costs	Est. Start Date of Operations/Use
1				
2				
3				
4				
5				
6				
Total Technology Costs		0	0	

F. RISKS AND ASSUMPTIONS

65. In the table below, list any risks to the program’s implementation over the next four years. For each risk, identify the severity (low, medium, high), probability of occurrence (low, medium, high), and the institution’s mitigation strategy for each risk. Insert additional rows as needed. (e.g. Are faculty available for the cost and time frame).

Risk	Severity	Probability	Risk Mitigation Strategy
Faculty Teaching EFT	Low	Low	All faculty teaching major/required courses associated with this major have been involved with the development of the course work required and have agreed to teach these courses.
Course Availability	Low	Low	During the course of curriculum development, all departments have been communicated with and have agreed to allow students from the Regenerative Bioscience major to take key courses in their departments (see departmental letters of support). In addition, alternative course options are provided for high enrollment classes.

66. List any assumptions being made for this program to launch and be successful (e.g. SACSCOC accreditation request is approved, etc.).

The assumptions associated with program success are:

1. **Student enrollment.** The department has proposed an escalating student enrollment in the new Regenerative Bioscience major over the next 4 years that will offset costs and lead to net positive revenue for the program. This is based on student surveys, interest observed in similar majors, and a growing employer need. Faculty believe that the estimated student enrollment numbers are conservative. However, if the major is unable to reach anticipated student enrollment numbers, there are outlined key approaches to increase student enrollment.
2. **Program costs.** The department has calculated current program costs which consists mostly of faculty time needed to teach courses and faculty and staff time to administer the program. No new faculty or staff will be hired to initiate this program. Instead, faculty and staff that are already part of the Animal and Dairy Science Department will be used to support this program. Faculty will allow students from this new major to take their current relevant courses, add new content to current courses, or have agreed to teach new courses. The department sees this as an opportunity to grow overall student numbers and anticipates that the new major will result in a net positive in revenue that will cover these faculty and staff costs. There are minimal additional costs such as teaching supplies, as most facilities and resources are already in place. These additional costs are expected to be recovered through departmental contact hours.
3. **Course availability.** The Regenerative Bioscience major is an interdisciplinary major that requires students to take courses in mathematics, chemistry, biology, and other key areas. This will add an additional burden to other departments and their teaching load. The department has contacted all of the departments that have courses that are offered as part of the new Regenerative Bioscience major to determine if the added student load would be acceptable. All departments with courses included in the major believe that the increased student load should not overwhelm the indicated courses and have agreed to allow their class to be offered as part of the major (Departmental Letters of Support were submitted with Regenerative Bioscience major proposal).

G. INSTITUTION APPROVAL

Have you completed and submitted the signature page?

APPENDIX I

Description of New Courses

	Prefix	Course Number	Title	Hours	Course Description	Prerequisites
1	ADSC	3410	Comparative Anatomy and Physiology of Domestic Animals	3	This course will compare the anatomy and physiology of food and companion animals. Special focus will be paid to the anatomical structures of animals and their physiological functions and how they impact animal growth and health. Specific attention will be paid to how the individual physiological systems work together to maintain homeostasis of the animal to enhance growth and ensure animal health.	ADSC 2010 or ADSC 2400*
2	ADSC	3410L	Comparative Anatomy and Physiology of Domestic Animals	1	This course will compare the anatomy and physiology of food and companion animals. Special focus will be paid to the anatomical structures of animals and their physiological functions and how they impact animal growth and health. Specific attention will be paid to how the individual physiological systems work together to maintain homeostasis of the animal to enhance growth and ensure animal health.	ADSC 2010 or ADSC 2400*
3	ADSC	4250/ 6250	Microbiology and Immunology in Domestic Animal Health	4	Animals are explorers in a microbial ecosystem that can profoundly affect their growth efficiency and health and are protected from microbial threats by their immune system. This course will compare the interactions between the microbial world and the immune system of companion and food animals. Further attention will be focused on how the microbial ecosystem of the animal interacts to prime and educate the host immune system to serve as a mixed defensive system preventing pathogen colonization.	BIOL 1108
4	ADSC*	3330	Therapies for Tissue Repair and Regeneration	3	Student will learn about regenerative biosciences approaches aimed at finding solutions to the most challenging medical problems faced by humankind. This course will discuss the development of cellular therapies, medical devices and artificial organs, and tissue engineering and biomaterials, and the development of innovative and translational diagnostic and modeling approaches. Students will gain an overview of the process of bringing a	BIOL 1108

					product or therapy from pre-clinical stages to clinical application.	
5	ADSC*	4420	Engineering Living Organisms	3	Powerful and rapidly evolving genome engineering technology have been revolutionizing basic and applied research fields, ranging from agriculture to biomedicine. The goal of this course is to equip students with the knowledge of cutting-edging genome editing technology in different organisms, focusing on the basic mechanisms, emerging applications, and related regulations in translational medicine fields.	GENE 3200 BCMB 3100
6	ADSC*	4950	Senior Capstone in Regenerative Bioscience	3	This capstone will serve as a culminating coursework experience. Students will apply regenerative bioscience approaches to develop a potential therapeutic or diagnostic that can be used to treat or evaluate a human or animal disease or injury. Students will utilize problem solving and critical thinking skills and apply the scientific method to devise an experimental plan that encompasses diagnostics, pre-clinical and clinical applications of a potential regenerative therapy.	ADSC* 4420
7	RBIO**	4960R	Faculty-Mentored Undergraduate Research I	2-6	Faculty-supervised independent or collaborative inquiry into fundamental and applied problems within a discipline that requires students to gather, analyze, and synthesize and interpret data and to present results in writing and other relevant communication formats.	
8	RBIO**	4970R	Faculty-Mentored Undergraduate Research II	2-6	Faculty-supervised independent or collaborative inquiry into fundamental and applied problems within a discipline that requires students to gather, analyze, and synthesize and interpret data and to present results in writing and other relevant communication formats.	RBIO 4960R
9	RBIO**	4980R	Faculty-Mentored Undergraduate Research III	2-6	Faculty-supervised independent or collaborative inquiry into fundamental and applied problems within a discipline that requires students to gather, analyze, and synthesize and interpret data and to present results in writing and other relevant communication formats.	RBIO 4970R
10	RBIO**	4990R	Undergraduate Research	2-6	Faculty-supervised independent or collaborative inquiry into fundamental and applied problems within a discipline that	RBIO 4980R

			Thesis (or Final Project)		requires students to gather, analyze, and synthesize and interpret data and to present results in writing and other relevant communication formats.	
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** A course change to RBIO will be submitted upon approval of the major and prefix.*

*** Will be created after approval of the major and prefix.*

APPENDIX II

SACSCOC Roster

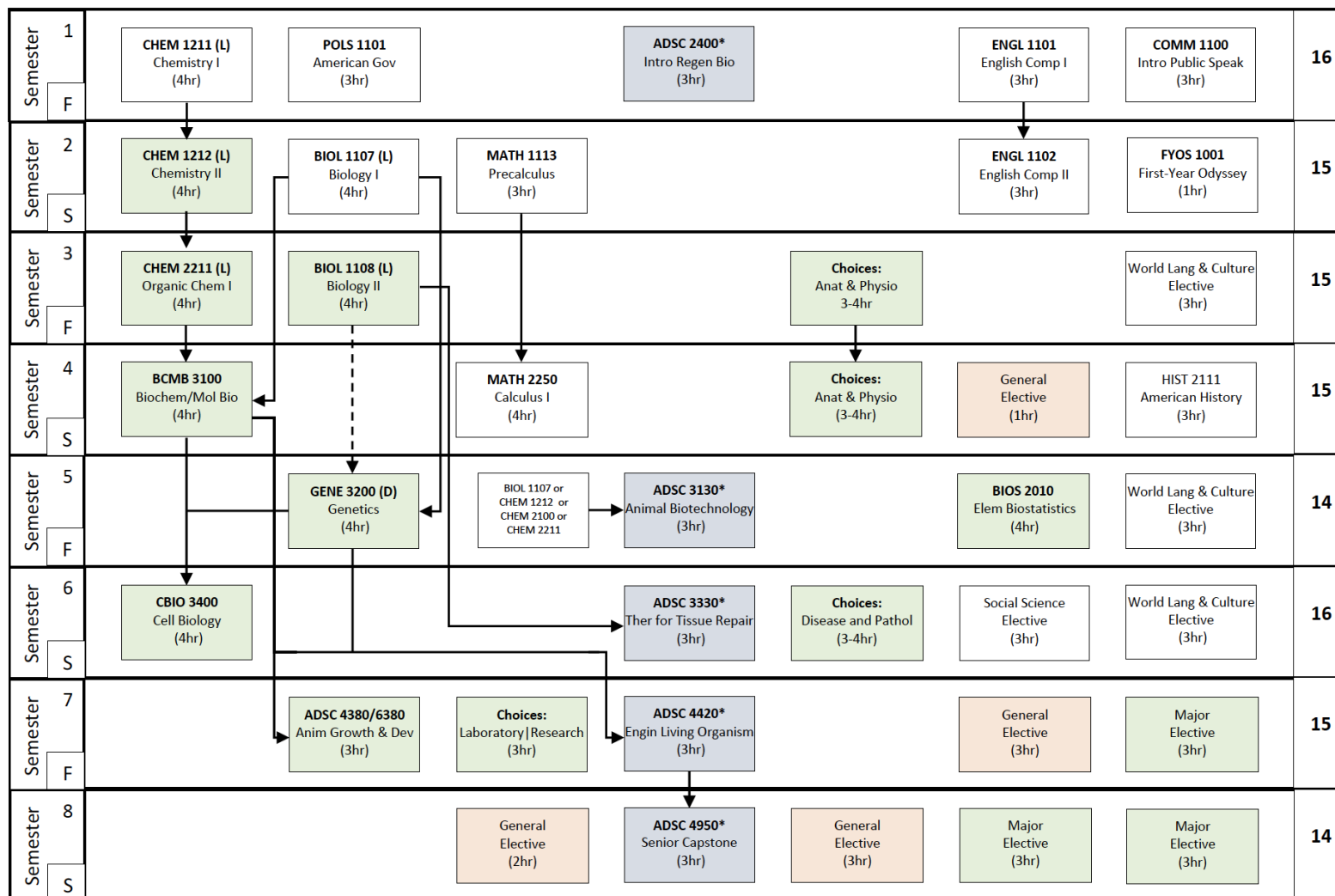
1	2	2	3	4
NAME (F, P)	Rank	COURSES TAUGHT Including Term, Course Number & Title, Credit Hours (D, UN, UT, G) [Dual] Note – for substantive change prospectuses/applications, list the courses <i>to be taught</i> , not historical teaching assignments	ACADEMIC DEGREES & COURSEWORK Relevant to Courses Taught, Including Institution & Major List specific graduate coursework, if needed	OTHER QUALIFICATIONS & COMMENTS Related to Courses Taught
Francis Fluharty	Professor (Department Head)	None	M.S., The Ohio State University Ph.D., The Ohio State University	RB Administration
Holly Kinder	Lecturer	<p>Fall: ADSC 2400*: Introductory Regenerative Bioscience (3hr)(U)</p> <p>NEW: RBIO 4960R/4970R/4980R/4990R: Faculty Mentored Undergraduate Research (2-6hr)</p> <p>Spring: NEW: ADSC 3330*: Therapies for Tissue Repair and Regeneration (55%) (3hr)(U) NEW: ADSC 4950*: Capstone Seminar in Regenerative Bioscience (3hr)(U) NEW: RBIO 4960R/4970R/4980R/4990R: Faculty Mentored Undergraduate Research (2-6hr)</p>	Ph.D. University of Georgia	RB Administration
Franklin West	Associate Professor	<p>Fall: ADSC 3130*: Animal Biotechnology (3hr)(U)</p> <p>NEW: RBIO 4960R/4970R/4980R/4990R: Faculty Mentored Undergraduate Research (2-6hr)</p> <p>Spring: NEW: RBIO 4960R/4970R/4980R/4990R: Faculty Mentored Undergraduate Research (2-6hr)</p>	Ph.D. University of Georgia	RB Administration

1	2	2	3	4
NAME (F, P)	Rank	COURSES TAUGHT Including Term, Course Number & Title, Credit Hours (D, UN, UT, G) [Dual] Note – for substantive change prospectuses/applications, list the courses <i>to be taught</i> , not historical teaching assignments	ACADEMIC DEGREES & COURSEWORK Relevant to Courses Taught, Including Institution & Major List specific graduate coursework, if needed	OTHER QUALIFICATIONS & COMMENTS Related to Courses Taught
Hongxiang Liu	Associate Professor	Fall: NEW: RBIO 4960R/4970R/4980R/4990R: Faculty Mentored Undergraduate Research (2-6hr) Spring: ADSC 4380/6380: Food Animal Growth and Development (3hr)(U/G) NEW: RBIO 4960R/4970R/4980R/4990R: Faculty Mentored Undergraduate Research (2-6hr)	M.D., Henan Medical University (currently Zhengzhou University) M.Sc., Henan Medical University (currently Zhengzhou University) Ph.D., Beijing Medical University (currently Peking University)	
Lohitash Karumbaiah	Associate Professor	Fall: NEW: RBIO 4960R/4970R/4980R/4990R: Faculty Mentored Undergraduate Research (2-6hr) Spring: NEW: ADSC 3330*: Therapies for Tissue Repair and Regeneration (15%) (3hr)(U) NEW: RBIO 4960R/4970R/4980R/4990R: Faculty Mentored Undergraduate Research (2-6hr)	M.S. Griffith University, Brisbane, Australia Ph.D. The University of Georgia	
Yao Yao	Assistant Professor	Fall: NEW: ADSC 4420*: Engineering Living Organisms (3hr)(U) NEW: RBIO 4960R/4970R/4980R/4990R: Faculty Mentored Undergraduate Research (2-6hr) Spring: NEW: RBIO 4960R/4970R/4980R/4990R: Faculty Mentored Undergraduate Research (2-6hr)	Ph.D. Chinese Academy of Sciences	

1	2	2	3	4
NAME (F, P)	Rank	COURSES TAUGHT Including Term, Course Number & Title, Credit Hours (D, UN, UT, G) [Dual] Note – for substantive change prospectuses/applications, list the courses <i>to be taught</i> , not historical teaching assignments	ACADEMIC DEGREES & COURSEWORK Relevant to Courses Taught, Including Institution & Major List specific graduate coursework, if needed	OTHER QUALIFICATIONS & COMMENTS Related to Courses Taught
Steven Stice	D.W. Brooks Professor & GRA Eminent Scholar	Fall: NEW: RBIO 4960R/4970R/4980R/4990R: Faculty Mentored Undergraduate Research (2-6hr) Spring: NEW: ADSC 3330*: Therapies for Tissue Repair and Regeneration (15%) (3hr)(U) NEW: RBIO 4960R/4970R/4980R/4990R: Faculty Mentored Undergraduate Research (2-6hr)	M.S., Iowa State University Ph.D., University of Massachusetts	
Luke Mortensen	Assistant Professor	Fall: NEW: RBIO 4960R/4970R/4980R/4990R: Faculty Mentored Undergraduate Research (2-6hr) Spring: NEW: ADSC 3330*: Therapies for Tissue Repair and Regeneration (15%) (3hr)(U) NEW: RBIO 4960R/4970R/4980R/4990R: Faculty Mentored Undergraduate Research (2-6hr)	M.S. University of Rochester Ph.D. University of Rochester	
Valerie Ryman	Assistant Professor	NEW: ADSC 4250/6250: Microbiology and Immunology of Domestic Animals (60%) (3)(U)	M.S., University of Georgia Ph.D., Michigan State University	
Todd Callaway	Associate Professor	NEW: ADSC 4250/6250: Microbiology and Immunology of Domestic Animals (40%) (3)(U)	M.S., University of Georgia Ph.D., Cornell University	USDA-ARS

* A course change to RBIO will be submitted upon approval of the major and prefix

APPENDIX III Curriculum Map



L = Lab

D= Discussion

* A course change to RBIO will be submitted upon approval of the major and prefix

APPENDIX IV

Industry Letters of Support



Boehringer Ingelheim
Animal Health

October 6th, 2020

Board of Regents of the University System of Georgia
270 Washington Street, SW
Atlanta, GA 30334

RE: Letter of Support for the proposed Bachelor of Science in Regenerative
Bioscience, University of Georgia

To the Board of Regents of the University System of Georgia:

On behalf of Boehringer Ingelheim, I would like to convey our strong support for the
newly proposed degree in Regenerative Bioscience at the University of Georgia.

Boehringer Ingelheim is a research-driven group of companies dedicated to the
discovery, development, manufacturing and marketing of human and animal health
products. Boehringer Ingelheim develops small molecules, vaccines, devices and
other therapeutics from the discovery stage to scale-up, substance manufacturing,
filling and finishing, packaging and distribution. To achieve our goals we rely on a
highly skilled workforce of over 50,000 employees worldwide with more than 1,700
working in the state of Georgia, making Boehringer Ingelheim one of the largest
bioscience employers in the state. We therefore know the value of a highly trained
and qualified workforce.

The curriculum of the Regenerative Bioscience degree has a strong composition of
life and natural sciences that would provide graduates of this program with a strong
foundation. The emphasis on regenerative biosciences, including classes covering
tissue engineering, cell therapies, and gene therapy will likely make graduates from
the Regenerative Bioscience program of study attractive to Georgia employers in
the bioscience and health science sectors. The curriculum also includes courses
that are data driven, focused on critical thinking skills and written and verbal
communication which are all key soft skills important to long-term career success.

We look forward to working with future graduates from the UGA Regenerative
Bioscience program.

Sincerely,

A handwritten signature in blue ink that reads "Frank Milward".

Frank Milward, DVM
Animal Health Global Innovation Head of Development

1730 Olympic Dr
Athens, GA 30601

Phone: +1 706-548-9292

www.boehringer-ingelheim.us





September 30, 2020

Dear Distinguished Board Members,

On behalf of the NSF Center for Cell Manufacturing Technologies (CMaT), I am excited to support the University of Georgia's new Regenerative Bioscience major. As you know, CMaT seeks to transform the manufacture of cell-based therapeutics into a large-scale, lower-cost, reproducible, and high-quality engineered process, for broad industry and clinical use. Both the University of Georgia and Georgia Institute of Technology are lead institutions for our research program and are heavily involved in our innovation ecosystem program with industry partners. We are only in our third year and already we have 20 industry partners and have a pipeline of over 10 companies that are interested in joining CMaT. Through the collaborative conversations with industry, we are well aware of the challenges that exist in filling the demand for qualified employees as the field continues to grow.

There is a large demand that continues to grow in the field of Regenerative Bioscience and it will take a concerted effort to educate and train the future workforce. The devised Regenerative Bioscience curriculum will provide students an interdisciplinary understanding of applied and theoretical knowledge in biochemistry, genetics, cell biology, anatomy, and physiology as they apply to regenerative bioscience. This type of training is highly relevant and should lead to a desirable workforce. I believe that students that graduates from the Regenerative Bioscience major would have many opportunities for careers in industry, academia, and government.

Sincerely,

A handwritten signature in black ink, appearing to read "Krishnendu Roy".

Krishnendu Roy, PhD
Director, NSF Center for Cell Manufacturing Technologies (CMaT)
Director, Marcus Center for Therapeutic Cell Characterization and Manufacturing (MC3M)
Director, Center for ImmunoEngineering
The Wallace H. Coulter Department of Biomedical Engineering at Georgia Tech and Emory
The Parker H. Petit Institute for Bioengineering and Biosciences
Georgia Institute of Technology, Atlanta, GA

315 Ferst Drive N.W., Atlanta, GA 30332-0363, 404-385-5261



Monday, September 28, 2020

Board of Regents of the University System of Georgia
270 Washington Street, SW
Atlanta, GA 30334

RE: Letter of Support for the proposed Bachelor of Science in Regenerative Bioscience,
University of Georgia

Dear Distinguished Board Members,

On behalf of Georgia Bio and its member companies, I would like to convey my strong support for the newly proposed Bachelor of Science degree program in Regenerative Bioscience at the University of Georgia.

Georgia Bio, is a private non-profit trade association whose mission is to advance the growth of Georgia's life sciences industry and foster strategic partnerships that can create a healthier world. To accomplish this mission, Georgia Bio works on behalf of 200 member organizations to drive public policy, build a network of industry leaders, create access to capital, introduce cutting-edge STEM education programs, and create robust value-driven purchasing programs.

The proposed undergraduate Regenerative Bioscience program has several strengths that make it advantageous to students seeking careers in the life-science industry. These include a comprehensive curriculum that builds a strong foundation in basic and biomedical sciences, fosters critical thinking skills, and emphasizes career competencies that will be invaluable in preparing students for the needs of the private sector. Additionally, the built-in flexibility of the curriculum will allow students to explore areas of interest related to biomedical physiology and prepare students to meet the diverse needs of the life-science industry.

The proposed program align nicely with the workforce needs within the life sciences industry. The industry continues to be a leading driving of employment across the country but industry hiring gaps persist. With the breakneck speed of new discoveries in the industry and shifting global and regulatory environments, there is growing demand for people with new technical and "soft" skills that can navigate this complex wave of change. This program at UGA may certainly assist in filling some of these gaps.

Employment projections from the Georgia Department of Labor predict that the life-science sector will continue to rapidly expand, resulting in constant demand for well-trained professionals. We anticipate that graduates from the proposed undergraduate Regenerative Bioscience program will be especially well prepared to meet the industry needs for highly competent, career-ready individuals. I encourage you to approve the proposed Bachelor of Science in Regenerative Bioscience at the University of Georgia. We look forward to working with graduates of this important program in the not-too-distant future.

Sincerely,

Maria Thacker Goethe, MPH
President & CEO
Georgia Bio / Georgia BioEd Institute
999 Peachtree St. NE, Suite 1800
Atlanta, GA 30309
404-920-2042 | mthacker@gabio.org

999 Peachtree Street NE / Suite 1800 / Atlanta, GA 30309 / p 404.221.0617 / f 404.448.3982 / www.gabio.org

Georgia Bio is a division of the Center for Global Health Innovation, Inc. a 501(c)3 non-profit, EIN 58-1849665.



Board of Regents of the University System of Georgia
270 Washington Street, SW
Atlanta, GA 30334

RE: Letter of Support for the proposed Bachelor of Science in Regenerative Bioscience,
University of Georgia

To the Distinguished Board of Regents Members of the University System of Georgia,

On behalf of Spectrum Biologics, we would like to convey our strong support for the newly proposed Regenerative Bioscience Degree at the University of Georgia.

Spectrum Biologics is a research organization committed to providing state of the art services for the discovery and development of novel bio-therapeutics and lending quality and regulatory expertise to move research products from the bench to the clinic, and finally to the shelf. To that end, it is increasingly imperative that the emerging workforce is equipped with the skills, knowledge, and critical thinking capabilities that is required to advance the next generation of research scientists.

While the existing degree programs at the University of Georgia are thorough and advanced, a program that focuses on curriculum tailored to the needs of Regenerative Medicine could encapsulate the nuances specific to the field. We at Spectrum Biologics believe that students graduating from the Regenerative Bioscience program would represent a new evolution in workforce development with a background in traditional basic principles of genetics and cell biology augmented with new and innovative knowledge associated with tissue regeneration and cell replacement therapies. Being a company that works with both cellular and biomaterial therapeutics, we are excited to see that this major will provide a strong background in biologics, materials, and devices ranging from therapeutics to diagnostics. The intradisciplinary training provided by the Regenerative Bioscience major will prepare graduates for the many diverse career opportunities in the field. Regenerative Bioscience is one of the fastest growing fields and there are likely to be many career opportunities for graduates of this program.

111 Riverbend Road | Athens, GA 30602



Sincerely,

A handwritten signature in blue ink, appearing to read "S. Chavan", written in a cursive style.

Surendra J. Chavan
CEO
Spectrum Biologics, Inc
111 Riverbend Road
Athens, GA 30602

111 Riverbend Road | Athens, GA 30602



**UNIVERSITY OF
GEORGIA**

College of Agricultural & Environmental Sciences
Department of Animal and Dairy Science

To: Fiona Liken, Office of Curriculum Systems

From: Francis Fluharty, Department Head and Professor

Re: Proposal for new Major in Regenerative Bioscience

Date: August 10, 2021

The proposed Regenerative Bioscience Major has been reviewed and approved by the faculty in the Department of Animal and Dairy Science, with a vote of 28 Yes votes, 3 No votes, and 2 Abstain. Please accept this letter of support and endorsement from the faculty in the Department of Animal and Dairy Science, and the Department Head.

Thanks for your consideration. Please let me know if any additional information is needed.



UNIVERSITY OF
GEORGIA

College of Agricultural and Environmental Affairs

Office of Academic Affairs

To: Fiona Liken, Office of Curriculum Systems

From: Nick Place, Dean and Director

Joe Broder, Associate Dean for Academic Affairs

Re: Proposal for new Major in Regenerative Bioscience

Date: August 10, 2021

The proposed Regenerative Bioscience Major has been reviewed and approved by the faculty governance process in the Department of Animal and Dairy Science, the College of Agricultural and Environmental Sciences Undergraduate Curriculum Committee and Faculty Council. With the approval of our college's curriculum review process, please accept this letter of support and endorsement from the Dean and Director and the Associate Dean for Academic Affairs.

Thanks for your consideration. Please let me know if any additional information is needed..



UNIVERSITY OF
GEORGIA

Institute for Artificial Intelligence
518 Boyd Graduate Studies Research Center
200 D.W. Brooks Drive
University of Georgia
Athens, Georgia 30602-7404
TEL 706-542-0881 | FAX 706-542-2966
www.ai.uga.edu

Franklin College of Arts & Sciences
Institute for Artificial Intelligence

May 20th 2021,

Board of Regents of the University System of Georgia
270 Washington Street, SW
Atlanta, GA 30334

Dear Distinguished Board Members,
The Institute for Artificial Intelligence in Franklin College at the University of Georgia supports the proposed undergraduate degree program in Regenerative Bioscience. Specifically, we feel that the subject matter is timely and relevant and are delighted that some of our courses may fit into the program. We will welcome students from the program into our courses.

We look forward to approval of the proposal, and anticipate with enthusiasm the implementation of this innovative training program.

Sincerely,

Khaled Rasheed

Khaled Rasheed
Professor of Computer Science &
Director of the Institute for Artificial Intelligence
University of Georgia
khaled@uga.edu



UNIVERSITY OF
GEORGIA

Fred C. Davison Life Sciences Complex
Suite B129
120 East Green Street
Athens, Georgia 30602
TEL 706-542-4259 | FAX 706-583-1738
westcm@uga.edu
www.bmb.uga.edu

Christopher M. West, Professor and Head
Department of Biochemistry and Molecular Biology
Franklin College of Arts and Sciences

April 16, 2021

Board of Regents of the University System of Georgia
270 Washington Street, SW
Atlanta, GA 30334

To whom it may concern:

The Department of Biochemistry & Molecular Biology has no objections to the new undergraduate (B.S.) major in Regenerative Bioscience proposed by the Department of Animal and Dairy Science at the University of Georgia.

Sincerely,

Christopher M. West, Ph.D.
Professor and Head of Biochemistry & Molecular Biology



UNIVERSITY OF
GEORGIA

Biological Sciences Building, 400
120 Cedar Street
Athens, Georgia 30602
TEL 706-542-1693 | FAX 706-583-0483
biology@uga.edu
biosciences.uga.edu

Franklin College of Arts & Sciences
Division of Biological Sciences

April 6, 2021

To: Board of Regents of the University System of Georgia
From: Dr. Kristen Miller, Director Biological Sciences Division
Re: Letter of Support for proposed Regenerative Bioscience major at UGA,

Board of Regents of the University System of Georgia
270 Washington Street, SW
Atlanta, GA 30334

To Whom It May Concern:

I am writing to support the proposed Regenerative Bioscience major at the University of Georgia. I believe it is an excellent option for science majors on our campus, and it will help support the graduate program in the Regenerative Bioscience Center. Please contact me with any concerns.

Sincerely,

Kristen R. Miller

Dr. Kristen Miller



Department of Cellular Biology

Franklin College of Arts and Sciences

UNIVERSITY OF GEORGIA

Board of Regents of the University System of Georgia
270 Washington Street, SW
Atlanta, GA 30334

March 27, 2021

Dear Board Members,

The Department of Cellular Biology in Franklin College at the University of Georgia supports the proposed undergraduate degree program in Regenerative Bioscience. The inclusion of some Cellular Biology courses in the curriculum of the program will benefit our instructional program and will require no new resources in order to meet the expected demand for these courses. We look forward to working with the faculty of the Regenerative Bioscience program and assisting the UGA students who will benefit from it.

With best regards,

A handwritten signature in cursive script that reads "Mark A. Farmer".

Mark A. Farmer

Professor & Interim Head of Cellular Biology



**UNIVERSITY OF
GEORGIA**
Department of Chemistry
*Franklin College of
Arts and Sciences*

Gary E. Douberly
Professor and Head
140 Cedar St.
Athens, Georgia 30602
Telephone (706) 542-1919
douberly@uga.edu

June 24, 2021

Board of Regents of the University System of Georgia
270 Washington Street, SW
Atlanta, GA 30334

Dear Distinguished Board Members,

The Department of Chemistry within the Franklin College of Arts and Sciences at the University of Georgia supports the proposed undergraduate degree program in Regenerative Bioscience. Specifically, we feel that the subject matter is timely and relevant and are delighted that some of our courses may fit into the program. We will welcome students from the program into our courses.

We look forward to approval of the proposal, and anticipate with enthusiasm the implementation of this innovative training program.

Sincerely yours,

Gary E. Douberly
Professor and Head
Department of Chemistry



**UNIVERSITY OF
GEORGIA**
Odum School of Ecology

July 26, 2021

Board of Regents of the University System of Georgia 270
Washington Street, SW
Atlanta, GA 30334

Dear Distinguished Board Members,

The Odum School of Ecology at the University of Georgia supports the proposed undergraduate degree program in Regenerative Bioscience in the Department of Animal and Dairy Science. We are pleased to note that Ecology courses align with and support this major, and expect that these courses will accommodate the additional demand.

We concur that this is a timely and important area that connects to pathways for career development and future study for UGA students.

Sincerely,

A handwritten signature in black ink, appearing to read "Sonia Altizer". The signature is fluid and cursive.

Sonia Altizer, Interim Dean
UGA Athletic Association Professor in Ecology



**UNIVERSITY OF
GEORGIA**
College of Public Health
Epidemiology & Biostatistics

May 18, 2021

Board of Regents of the University System of Georgia
270 Washington Street, SW
Atlanta, GA 30334

Dear Distinguished Board Members,

The Department of Epidemiology and Biostatistics in the College of Public Health at the University of Georgia supports the proposed undergraduate degree program in Regenerative Bioscience. We feel that the subject matter is timely and relevant. We are delighted that some of our courses may fit into the program curriculum, in specific BIOS 2010: Elementary Biostatistics. We will welcome students from the program into our courses.

We look forward to approval of the proposal and anticipate with enthusiasm the implementation of this innovative training program.

Sincerely yours,

José F. Cordero, MD, MPH, FAAP
Patel Distinguished Professor of Public Health
Department Head



UNIVERSITY OF
GEORGIA

Warnell School of Forestry and Natural Resources

Forestry, Fisheries and Wildlife,
Natural Resources Management and Sustainability,
Parks, Recreation and Tourism Management

Office of the Dean

May 20, 2021

Board of Regents of the University System of Georgia
270 Washington Street, SW
Atlanta, GA 30334

Dear Distinguished Board Members,

The Warnell School of Forestry and Natural Resources at the University of Georgia supports the proposed undergraduate degree program in Regenerative Bioscience. We feel that the subject matter is timely and relevant and are delighted that some of our courses may fit into the program. We will welcome students from the program into our relevant courses.

We look forward to approval of the proposal and anticipate with enthusiasm the implementation of this innovative training program.

Sincerely,

W. Dale Greene
Dean



UNIVERSITY OF
GEORGIA

Fred C. Davison Life Sciences Complex
120 E. Green Street
Athens, Georgia 30602-7223
TEL 706-542-8000 | FAX 706-542-3910
www.genetics.uga.edu

Franklin College of Arts and Sciences
Department of Genetics

March 29, 2021

Dear Dr. Fluharty,

The Genetics department has no objection to your including the GENE courses listed in your proposal for an undergraduate major in Regenerative Biosciences, either as required or optional courses.

Sincerely,

Nancy R Manley
Distinguished Research Professor
Head, Dept. of Genetics
University of Georgia



College of Veterinary Medicine
Department of Infectious Diseases

May 18, 2021

Board of Regents of the University System of Georgia
270 Washington Street, SW
Atlanta, GA 30334

Dear Board Members,

The Department of Infectious Diseases in College of Veterinary Medicine at the University of Georgia supports the proposed undergraduate degree program in Regenerative Bioscience. We feel that the subject matter is timely and relevant to our mission as well as that of the University. We are delighted that some of our courses may fit into the program, and will be very happy to welcome those students.

We look forward to approval of this proposal, and anticipate with enthusiasm the implementation of this innovative training program. Please let me know if you need any additional information.

Sincerely,

Frederick D. Quinn, Ph.D.
Athletic Association Professor of Infectious Diseases and Head



Mary Frances Early College of Education

Department of Kinesiology

UNIVERSITY OF GEORGIA

May 19, 2021

Board of Regents of the University System of Georgia
270 Washington Street, SW
Atlanta, GA 30334

Dear Distinguished Board Members,

The Department of Kinesiology in the Mary Frances Early College of Education at the University of Georgia supports the proposed undergraduate degree program in Regenerative Bioscience in the Department of Animal and Dairy Science. We recognize the value of this major for students to establish proficiency in regenerative science. The opportunity to have students in this major in some of our classes is exciting to our faculty.

We look forward to approval of the proposal, and anticipate with enthusiasm the implementation of this timely and innovative program.

Sincerely,

Janet Buckworth, PhD, FACSM
Professor and Head
Department of Kinesiology



UNIVERSITY OF
GEORGIA

Boyd GSRC
Athens, Georgia 30602
TEL 706-542-2211
www.math.uga.edu

Franklin College of Arts and Sciences
Department of Mathematics

May 19, 2021

Board of Regents of the University System of Georgia
270 Washington Street, SW
Atlanta, GA 30334

Dear Distinguished Board Members:

The Department of Mathematics in the Franklin College at the University of Georgia is pleased to support the proposed undergraduate program in Regenerative Bioscience, and the inclusion of MATH (BINF) 4780/6780 as an elective option for this major. We are glad that our course fits into this timely and relevant new major, and will welcome students from this program in mathematics courses such as this.

Sincerely,

William Graham
Department Head and Professor of Mathematics



UNIVERSITY OF
GEORGIA

Franklin College of Arts and Sciences
Department of Microbiology

March 26, 2021

Board of Regents of the University System of Georgia
270 Washington Street, SW
Atlanta, GA 30334

Dear Distinguished Board Members,

The Department of Microbiology in Franklin College at the University of Georgia supports the proposed undergraduate degree program in Regenerative Bioscience. Specifically, we feel that the subject matter is timely and relevant and are delighted that some of our courses may fit into the program. We will welcome students from the program into our courses.

We look forward to approval of the proposal, and anticipate with enthusiasm the implementation of this innovative training program.

Sincerely yours,

Aaron P. Mitchell, PhD
Professor & Head
Department of Microbiology



**UNIVERSITY OF
GEORGIA**

College of Veterinary Medicine

Department of Pathology

March 30, 2021

Board of Regents of the University System of Georgia
270 Washington Street, SW
Atlanta, GA 30334

Dear Distinguished Board Members,

The Department of Pathology in the College of Veterinary Medicine at the University of Georgia supports the proposed undergraduate degree program in Regenerative Bioscience. The faculty in the department are happy to provide courses for the program.

We welcome this new undergraduate program and look forward to its start at the University of Georgia.

Best regards,

Jesse M. Hostetter, DVM, PhD, DACVP
Barry G. Harmon Professor and Head
Department Veterinary Pathology

April 13, 2021

Board of Regents of the University System of Georgia
270 Washington Street, SW
Atlanta, GA 30334

Re: Letter of Support for the proposed Bachelor of Science in Regenerative Bioscience at the University of Georgia

On behalf of the Department of Pharmaceutical and Biomedical Sciences in the College of Pharmacy at the University of Georgia, I would like to convey by strongest support with the highest level of enthusiasm for the novel proposed Bachelor of Science degree program in Regenerative Biosciences at the University of Georgia.

The Department of Pharmaceutical and Biomedical Sciences is located in the College of Pharmacy. We have an established BS program in Pharmaceutical Sciences that is relatively new (less than 10 years old). This program graduates approximately 20 students a year. These students are trained to serve the work force in drug development in Georgia and throughout the Southeastern United States. Our graduates go on to high paying jobs in pharmaceutical industry for companies such as Mikart, Atlanta Diabetes Associates, ProCare Therapy, Alvogen, AstraZeneca, UGA and Remington Medical. As such, we are very focused on creating work force for the life science industry. As great as our students are, their training is focused on drug design, delivery, dissolution and development. While much of this is focused on treatment of diseases, there is less focus on regenerative medicine. As such, the Regenerative Biosciences program would be an outstanding pairing for such students and would be synergistic with our program. Both programs focus on therapeutics and may offer opportunities for cross pollination, creating a cross trained student highly sought after by employers across the nation. This can easily be obtained by creation of future DoubleDawg programs with a mix and match BS-MS degree from both programs. This creates interdisciplinary education and research

opportunities which fall in line with the strategic goals of PBS and the College of Pharmacy. To facilitate this the Regenerative Bioscience major has included PBS courses in the program as options, including PMCY3000 (Physiology), one of our most popular course taken by outside majors.

In conclusion, I highly support this program and will be happy to add any additional information.

Sincerely,

A handwritten signature in blue ink, appearing to read "Brian S. Cummings", written over a horizontal line.

Brian S. Cummings, Ph.D.
Professor and Department Head
Pharmaceutical and Biomedical Sciences
Georgia Cancer Coalition Distinguished Scholar
Lilly Teaching Fellow
336 College of Pharmacy South
Athens, GA 30602
Phone: 706-542-3792
E-Mail: briansc@uga.edu



UNIVERSITY OF
GEORGIA

Department of Physics
and Astronomy

Franklin College of Arts and Sciences

May 18, 2021

Board of Regents of the University System of Georgia
270 Washington Street, SW
Atlanta, GA 30334

Re: Regenerative Bioscience B.S. program

Dear Distinguished Board Members,

The Department of Physics and Astronomy in the Franklin College at the University of Georgia supports the proposed undergraduate degree program in Regenerative Bioscience. The subject matter is timely, important to the health of the citizens of Georgia, and to the growing biotechnology industry in our state. We are delighted that some of our courses may fit into the program and we welcome students in the proposed Regenerative Bioscience program into our courses.

We look forward to approval of this proposal, and anticipate with enthusiasm the implementation of this innovative training program.

Sincerely,

Phillip C. Stancil
Professor and Head
Fellow, American Physical Society
Chair, Laboratory Astrophysics Division,
American Astronomical Society
Athens, GA 30602-2451
706-542-2485
pstancil@uga.edu



UNIVERSITY OF
GEORGIA

College of Veterinary Medicine
Department of Physiology & Pharmacology
Athens, Georgia 30602-7389
TEL 706-542-3014 | FAX 706-542-3015
www.uga.edu

April 6, 2021

Board of Regents of the University System of Georgia
270 Washington Street, SW
Atlanta, GA 30334

Dear Distinguished Board Members,

The Department of Physiology and Pharmacology at the University of Georgia supports the proposed undergraduate degree program in Regenerative Bioscience. This program will complement physiology offerings in our department and provide a unique opportunity to expand the knowledge base and skillset students have at graduation. Regenerative Biosciences is a growing area of research and interests many students. It is likely that this program will bring additional students to our newly approved degrees in Biomedical Physiology, either as a minor or a double major in Biomedical Physiology.

Many of the students in our undergraduate programs seek placement in professional or graduate programs related to human or animal health. This proposed program will offer training in a specialized area of these fields.

In summary, we look forward to approval of this proposal and expanded opportunities for all students.

Sincerely,

Gaylen L. Edwards, DVM, PhD
Professor and Head



Department of Plant Biology

Franklin College of Arts and Sciences

UNIVERSITY OF GEORGIA

May 18, 2021

Board of Regents of the University System of Georgia
270 Washington Street, SW
Atlanta, GA 30334

Dear Distinguished Board Members,

The Department of Plant Biology in the Franklin College of Arts & Sciences at the University of Georgia supports the proposed undergraduate degree program in Regenerative Bioscience. This is a timely and relevant topic that is likely to garner significant student interest, and we would be happy to have students from this program in any of our relevant courses.

We look forward to approval of the proposed program and look forward to witnessing its positive impact on students at the University of Georgia.

Sincerely,

John M. Burke, Ph.D.

Distinguished Research Professor & Head
Department of Plant Biology



UNIVERSITY OF
GEORGIA

Poultry Diagnostic and Research Center
953 College Station Road
Athens, Georgia 30602
TEL 706-542-1904 | FAX 706-542-5630
mjackwoo@uga.edu
www.vet.uga.edu/populationhealth/

College of Veterinary Medicine

Department of Population Health

June 11, 2021

Board of Regents of the University System of Georgia
270 Washington Street, SW
Atlanta, GA 30334

To Whom It May Concern:

The purpose of this letter is to communicate our support for the Department of Animal and Dairy Science's proposed Regenerative Bioscience major. This major takes advantage of seven faculty in the Regenerative Bioscience Center (RBC). A major goal of this major is to provide students with an interdisciplinary education, therefore courses from our department will be included in the curriculum.

We agree that the following courses be included as elective options for this major:

MBIO (POPH) 4220/6220, 4220S/6220S: Pathogenic Bacteriology
POPH (MBIO)(IDIS) 4650/6650: Introduction to Virology

If you have any questions I can be contacted at mjackwoo@uga.edu or the above address and phone number.

Sincerely,

Mark W. Jackwood, Ph.D.

The J.R. Glisson Professor of Avian Medicine and Head



College of Agricultural and Environmental Sciences
Department of Poultry Science

July 12, 2021

Dr. Francis Fluharty
Department of Animal & Dairy Science
University of Georgia
425 River Rd
Athens, GA 30602

Dr. Fluharty:

The Department of Poultry Science at the University of Georgia is supportive of the proposed undergraduate degree program in Regenerative Bioscience. We feel the program will indeed be additive to needs of students as well as a broad array of career opportunities for those students.

We are indeed pleased that an array of courses may fit into these student's curricula and endorse their inclusion in the curriculum as outlined in your proposal, namely:

- POUL 3000-3000L: Avian Surgical Techniques
- POUL 3050: Molecular Diagnostic and Research Tools in Avian Biology
- POUL (BIOL) 4060/6060: Reproductive Endocrinology
- POUL 4175: Avian Anatomy and Physiology
- POUL 4300/6300: Nutritional Immunology in Health and Production

We will accommodate their enrollment the best we can with faculty and available resources. We would also welcome the possibility of consideration of other courses as the opportunity would arise in the future.

Sincerely,

Todd J. Applegate, PhD
Professor & Head of Dept. of Poultry Science



UNIVERSITY OF
GEORGIA

Franklin College of Arts and Sciences
Department of Psychology

Psychology Building
125 Baldwin Street
Athens, Georgia 30602
TEL 706-542-2174 | FAX 706-542-3275
lsmiller@uga.edu
www.psychology.uga.edu

May 28, 2021

Board of Regents of the University System of Georgia
270 Washington Street, SW
Atlanta, GA 30334

Dear Regent Board Members,

The Department of Psychology in the Franklin College of Arts and Sciences at the University of Georgia supports the proposed undergraduate degree program in Regenerative Bioscience. Specifically, we feel that the subject matter is timely and relevant and are happy that our courses fit into the program and we welcome students from the program into our courses. We look forward to approval of the proposal, and anticipate with enthusiasm the implementation of this innovative training program.

Sincerely,

Dr. L. Stephen Miller
Head and Professor
Department of Psychology



**UNIVERSITY OF
GEORGIA**

Franklin College of Arts and Sciences
Department of Statistics

May 21, 2021

Board of Regents of the University System of Georgia
270 Washington Street, SW
Atlanta, GA 30334

Dear Distinguished Board Members,

The Department of Statistics in Franklin College of Arts & Sciences at the University of Georgia is pleased to provide this letter of support for the proposed undergraduate degree program in Regenerative Bioscience from the Department of Animal and Dairy Science in the College of Agricultural and Environmental Sciences. I have reviewed the proposal and concur that this degree will provide students with an interdisciplinary education in both human and animal physiology and health. We feel that the subject matter is timely and relevant. We are delighted that the Statistics courses, STAT 2000, STAT 3110, STAT 3110E and STAT 3120, may fit into the program. We will welcome students from the program into our courses.

We look forward to approval of the proposal, and anticipate with enthusiasm the implementation of this innovative degree program.

Sincerely,

Tharuvai N. Sriram
Professor & Head
Department of Statistics

Documentation of Approval and Notification

Proposal: Major in Regenerative Bioscience (B.S.)

College: College of Agricultural and Environmental Sciences

Department: Animal and Dairy Science

Proposed Effective Term: Fall 2023

Department:

- Animal and Dairy Science Department Head, Dr. Francis Fluharty, 8/10/21

School/College:

- College of Agricultural and Environmental Sciences Dean, Dr. Nick Place, 8/10/21
- College of Agricultural and Environmental Sciences Associate Dean, Dr. Josef Broder, 8/10/21

Additional Support Letters:

- Biochemistry and Molecular Biology Department Head, Dr. Christopher West, 4/16/21
- Division of Biological Sciences Chair, Dr. Kristen Miller, 4/6/21
- Cellular Biology Interim Department Head, Dr. Mark Farmer, 3/27/21
- Chemistry Department Head, Dr. Gary Douberly, 6/24/21
- Epidemiology and Biostatistics Department Head, Dr. Jose Cordero, 5/18/21
- Genetics Department Head, Dr. Nancy Manley, 3/29/21
- Infectious Diseases Department Head, Dr. Frederick Quinn, 5/18/21
- Institute of Artificial Intelligence Director, Dr. Khaled Rasheed, 5/20/21
- Kinesiology Department Head, Dr. Janet Buckworth, 5/19/21
- Mathematics Department Head, Dr. William Graham, 5/19/21
- Microbiology Department Head, Dr. Aaron Mitchell, 3/26/21
- Odum School of Ecology Interim Dean, Dr. Sonia Altizer, 7/26/21
- Pathology Department Head, Dr. Jesse Hostetter, 3/30/21
- Pharmaceutical and Biomedical Sciences Department Head, Dr. Brian Cummings, 4/13/21
- Physics Department Head, Dr. Phillip Stancil, 5/18/21
- Physiology and Pharmacology Department Head, Dr. Gaylen Edwards, 4/6/21
- Plant Biology Department Head, Dr. John Burke, 5/18/21
- Population Health Department Head, Dr. Mark Jackwood, 6/11/21
- Poultry Science Department Head, Dr. Todd Applegate, 7/12/21
- Psychology Department Head, Dr. L. Stephen Miller, 5/28/21
- Statistics Department Head, Dr. T.N. Sriram, 5/21/21
- Warnell School of Forestry and Natural Resources Dean, Dr. Dale Greene, 5/20/21
- Boehringer Ingelheim, Dr. Frank Milward, 10/6/20
- NSF Engineering Research Center for Cell Manufacturing Technologies, Dr. Krishnendu Roy, 9/30/20

- Georgia Bio, Ms. Maria Thacker Goethe, 9/28/20
- Spectrum Biologies, Ms. Surendra Chavan