

Program Proposal for an Undergraduate Certificate

1. Name of the proposed undergraduate certificate.

Equine Science and Management

2. Name of the department(s) involved.

Animal Science

3. Name of contact person(s).

Dr Jodi Sterle, 119 Kildee Hall, 806 Stange Road; jsterle@iastate.edu, 515-294-7997

4. General description of the undergraduate certificate.

The proposed Equine Science and Management Certificate program consists of 24 credits. Successful completion of the certificate requires completion of courses within the following categories: Foundation (3 credits), Fundamental Disciplines (6 credits), Equine Expertise Expansion (6 credits from a menu), Expertise Expansion (3 credits from a menu), and Equine Management Emphasis (6 credits). The program prompts the student to customize their certificate with specific scientific disciplines and management practices. This 24-credit certificate provides the appropriate background and context for the student to generate their Equine Science and Management Expertise.

The certificate requirements are organized to correspond with faculty and employer defined needs for a successful transition from student to equine industry professional. Successful completion of the certificate requires a minimum of 18 credits at the 300 or 400 level. The program integrates equine production principles with foundation disciplines in animal science.

All courses applied to the Equine Science and Management Certificate must be taken for a grade. A cumulative GPA of 2.0 is required to complete the program and receive the certificate

5. Need for the proposed undergraduate certificate.

The U.S. equine industry generates approximately \$122 billion in total economic impact. The industry has a total employment impact of 1.74 million and generates \$79 billion in total salaries, wages, and benefits. The USDA 2017 Census of Agriculture reported nearly 55,000 horses, ponies, mules, and donkeys on more than 9,000 farms in Iowa. The state's total sales of equine were \$19.7 million, ranking Iowa 11th in the nation. In the United States, currently, there are an estimated 7.2 million horses. Also, 38 million, or 30.5%, of U.S. households contain a horse enthusiast. Students with documented expertise in this certificate program will be ready to contribute to this growing industry.

Responsible and effective breeding and health management contributes to the equine industry's vitality, supports efforts to improve animal welfare; and increases the awareness of recreational use of horses for sport, companionship, competition, and entertainment. Therefore, successful equine management contributes to a growing agricultural economy. The demand for professionals with expertise in equine production management is rising and is acutely evident. Expertise is necessary for traditional production venues and expands to animal welfare, the horse-human bond, and aspects of competition and sport.

Employers are prepared to hire them. Employer feedback related to the proposed certificate program was collected via an online survey instrument in the fall of 2020 (N=50; Figure 1). Prospective employers of Animal Science students highly favor the proposed certificate program and feel that the certificates would help identify potential employees.

Figure 1. Proposed certificate programs – Employer feedback (N=50)

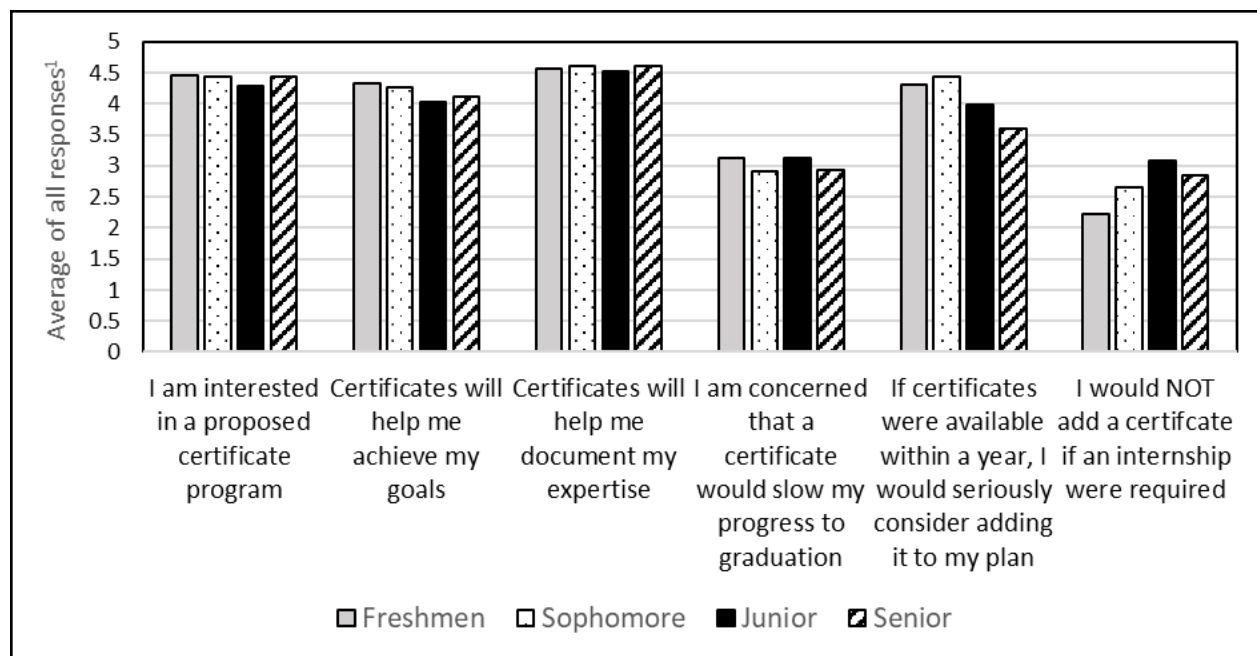


¹Strongly agree = 5, Agree = 4, Neutral = 3, Disagree = 2, Strongly Disagree

Students need a clear path to customize and document their training and expertise. Formal recognition of **focused study** in Equine Science and Management is not offered in a minor, certificate, major, or secondary major at Iowa State. Completing the proposed Equine Science and Management Certificate will demonstrate that the student has met a faculty threshold of expectations. Documentation of the certificate on the transcript provides a way for students to show how they pursued and completed a customized course of study and have achieved a level of competency in Equine Science and Management.

Student feedback related to the proposed certificate program was collected via an online survey instrument in the fall of 2020 (N=401; Figure 2). Current students of Animal Science students are interested in the proposed certificate program and feel that the certificates would help them document their expertise.

Figure 2. Proposed certificate programs – Student feedback (N=50)



¹Strongly agree = 5, Agree = 4, Neutral = 3, Disagree = 2, Strongly Disagree

6. Objectives of the proposed undergraduate certificate including the student learning outcomes and how the learning outcomes will be assessed.

Objective

The objective of the Equine Science and Management Certificate is to establish a curriculum or program of study that assures expertise in applications of Science and technology in equine management.

Learning Outcomes

After completion of the certificate in Equine Science and Management, students will

- a. Demonstrate a breadth of understanding of nutrition, physiology, and breeding applications in modern equine systems.
- b. Evaluate systems and provide solutions to ensure the efficient management of an equine operation.
- c. Recognize issues that affect the utilization of natural resources in equine systems.
- d. Demonstrate competence in hands-on and practical applications in their field.
- e. Demonstrate the development of the knowledge, skills, and abilities necessary for a career position in equine management.

Assessment

The requirements for this certificate are 24 credits defined below. (Foundation, Fundamental Disciplines in Animal Science, Equine Expertise Expansion, Expertise Expansion, and Equine Management Emphasis)

- Outcome "a" will be achieved by completing courses outlined in Fundamental Disciplines in Animal Science, Equine Expertise Expansion, and in Expertise Expansion
- Outcomes "b" and "c" will be achieved by completing courses outlined in Foundation, Equine Expertise Expansion, Expertise Expansion, and the Equine Management Emphasis.
- Outcome "d" will be achieved by the completion of courses outlined Equine Management Emphasis. This internship will be approved by a faculty member that monitors these activities for students in this certificate program.
- Outcome "e" will be achieved by completing courses in the Equine Management Emphasis and the Expertise Expansion course menu. Outcome "e" will also be achieved with the successful completion of the internship.

7. Relationship of the undergraduate certificate to other programs at Iowa State University.

There are no other undergraduate programs at Iowa State University that meet the Equine Science and Management Certificate's objectives. The program involves existing courses, but the degree requirements for an Animal Science major or minor do not dictate the core required courses and internship. Therefore, these programs do not reach the level of emphasis proposed by this certificate.

Animal Science majors will likely utilize the certificate, but students in other majors may find synergy with their chosen major and the certificate. For example, it is expected that students in Agriculture Business, Agriculture Education, and Agriculture Studies might find this certificate an effective way to customize their studies and document their expertise.

8. Relationship of the undergraduate certificate to the strategic plans of the university, of the college, and of department or program.

Animal Science has a history of positive impact on lives and livelihoods in Iowa, the USA, and the world. Animal Science has a 125-year history in the university and remains curriculum with the College of Agriculture and Life Sciences' largest enrollment. The certificate program is a demonstration of an emphasis on students – "Ensure students receive an excellent education" – defined in the University Strategic plan. Moreover, the program is consistent with the CALS strategic plan to "Deliver high-quality, highly experiential educational programs."

9. Comparison of the proposed undergraduate certificate with similar programs at other universities, including the Regent's universities.

- Tarleton State University offers an Equine Science Certification option, that requires only equine credits. These include 16 credits of core classes, and 6 credits of elective classes.
 - <https://www.tarleton.edu/equine/equine-certification.html>
- Texas A&M offers an Equine Science Certificate. It requires 23 equine courses from a menu, according to
 - <https://catalog.tamu.edu/undergraduate/agriculture-life-sciences/animal-science/equine-science-certificate/#text>
- Kansas State University has an Equine Science Certificate. It requires 20 credit hours of Equine Science related courses from an approved list.

- o https://catalog.k-state.edu/preview_program.php?catoid=44&poid=14572

All three of the certificates above require only equine courses to fulfill the requirement. The proposed program is perhaps the most similar to the Texas A&M program. Both programs integrate Science and technology with management principles. Texas A&M is the only one requiring an internship. The Tarleton State University program has fewer required credits and emphasizes more Science and less production.

The Iowa State University program would be unique in requiring a combination of equine-related courses, animal science discipline courses, and expertise courses.

10. Program requirements and procedures, including:

The program is structured to build expertise in equine Science and management using five categories: Foundation Course (3 Credits), Fundamental Disciplines in Animal Science (6 credits), Equine Expertise Expansion (6 credits), Expertise Expansion (3 credits), and Equine Management Emphasis (6 credits). **Per ISU policy, nine credits will be unique to the certificate and will not be applied to a major, minor, or other certification.**

The undergraduate equine science certificate is designed to meet students' needs wishing to supplement their academic major with studies in Equine Science. The certificate provides enhanced opportunities for any student who wants to emphasize their knowledge in Equine Science and increase documentation of their horse handling skills. The certificate program is built on a strong science background and adds practical applications of equine management. This certificate may be beneficial to any student pursuing an equine career regardless of degree or major.

The selection of courses from the approved list will provide both scientific and practical concentration within Equine Science and Management regardless of the student's declared major.

EQUINE SCIENCE AND MANAGEMENT CERTIFICATE (24 CREDITS)

Foundation Course (3 credits)		
An S 216	Equine Science	3
Fundamental Disciplines in Animal Science (6 credits)		
AN S 320	Animal Feeds and Feeding	3
AN S 331	Domestic Animal Reproduction	3
Equine Expertise Expansion (6 Credits)		
ANS 217	Equine Farm Practicum	2
An S 306	Equine Evaluation	3
An S 313	Exercise Physiology of Animals*	2
An S 317A	Fundamentals of Equine Behavior and Training: Young Horses at Halter	1
An S 317B	Fundamentals of Equine Behavior and Training: Yearlings	3
An S 332E	Laboratory Methods in Animal Reproduction – Equine	1
Expertise Expansion (3 Credits)		
ACCT 215	Legal Environment of Business	3

AGEDS 451	Agricultural Law	3
AGRON 334	Forage Crop Management	3
AN S 333	Embryo Transfer and Related Technologies	3
AN S 336	Domestic Animal Behavior and Well-Being*	3
AN S 337	Lactation	3
AN S 345	Growth and Development of Domestic Animals*	3
ECON 230	Farm Business Management	3
ECON 334	Entrepreneurship in Agriculture	3
Equine Management Emphasis (6 credits)		
AN S 415	Equine Systems Management	3
ANS 399	Equine Internship Experience	3
Total		24 credits

1. Foundation courses (4) Can count toward major. (ANS 216 is a pre-requisite for AN S 415)
2. Fundamental Disciplines (6) Can count toward major. (ANS 320 and ANS 331 is a pre-requisite for ANS 415)
3. Equine Expertise Expansion (6) Courses marked with an "*" fulfill the Animal Science degree discipline expansion requirement unless designated as a unique course in the certificate.
4. Expertise Expansion (3) Courses marked with an "*" fulfill the Animal Science degree discipline expansion requirement unless designated as a unique course in the certificate.
5. Equine Management Emphasis (6)

a. prerequisites for prospective students;

Per ISU policy, Students must be a current baccalaureate student and maintain a cumulative GPA of 2.0. After receiving a baccalaureate degree from any accredited institution, a student may enroll at Iowa State University to earn a certificate. A cumulative grade point average of at least 2.00 is required in courses taken at ISU for a certificate.

b. application and selection process;

Policies and procedures will be consistent with university policies. The certificate will only be available to students pursuing a baccalaureate degree at ISU or student that currently holds a baccalaureate degree from any accredited institution.

c. language requirements;

Students must be able to communicate in English. There are no other language requirements for this program.

d. courses and seminars presently available for credit toward the program;

All courses in the proposed program are available

Course and number	Title	Credits
ACCT 215	Legal Environment of Business	3
AGEDS 451	Agricultural Law	3
AGRON 334	Forage Crop Management	3
An S 216	Equine Science	3
ANS 217	Equine Farm Practicum	2

An S 306	Equine Evaluation	3
An S 313	Exercise Physiology of Animals*	2
An S 317A	Fundamentals of Equine Behavior and Training: Young Horses at Halter	1
An S 317B	Fundamentals of Equine Behavior and Training: Yearlings	3
AN S 320	Animal Feeds and Feeding	3
AN S 331	Domestic Animal Reproduction	3
An S 332E	Laboratory Methods in Animal Reproduction – Equine	1
AN S 333	Embryo Transfer and Related Technologies	3
AN S 336	Domestic Animal Behavior and Well-Being*	3
AN S 337	Lactation	3
AN S 345	Growth and Development of Domestic Animals*	3
AN S 352	Genetic Improvement of Domestic Animals	3
ANS 399	Equine Internship Experience	3
AN S 415	Equine Systems Management	3
ECON 230	Farm Business Management	3
ECON 334	Entrepreneurship in Agriculture	3

a. proposed new courses or modifications of existing courses;

The objective is to assemble courses already available to provide a course of study that allows students the chance to customize their program and document their achievement in their formal transcript. No new courses are in the proposal. AN S 399 (Animal Science Internship) will have a specific section assigned to clarify that it meets the requirement for an equine internship experience. A committee will confirm that the internship experience meets the requirement.

b. advising of certificate students;

The Chair of the Animal Science Department will assign an Equine Science and Management Certificate advisory committee. Members of that committee will advise students in the program.

c. implications for related areas within the university.

Animal Science majors will likely utilize the certificate, but students in other majors may find a synergy of their chosen line of study with the certificate. For example, it is expected that students in Agriculture Business, Agriculture Education, and Agriculture Studies might find this certificate an effective way to customize their studies and document their expertise.

11. General description of the resources currently available and future resource needs, in terms of:

a. faculty members;

Current faculty are available to teach the required Equine courses

b. computers, laboratories, and other facilities;

Because no new courses are needed to offer the proposed program, the infrastructure is already in place. However, as course enrollments increase, there may be a need to

enhance equine teaching facilities, including experiential learning space at the equine teaching farm.

c. library facilities (journals, documents, etc.) in the proposed area;

Library resources already provide support for faculty and staff that serve the program. Also, students enrolled in the certificate program have access to the required resources. No additional resources are necessary

d. supplies, field work, student recruitment, etc.

The Animal Science Department's support staff, faculty, and advisors currently support equine production and management teaching and recruitment activities for the animal science major (current enrollment of approximately 1050 undergraduate students). No additional resources are anticipated

12. Describe the needs for new resources and/or reallocated resources. Attach to the program proposal memos from the department chair(s), the college dean(s), and other appropriate persons, agreeing to the allocation of new resources and the reallocation of resources.

Courses will be taught by program faculty as part of their regular responsibilities and as scheduled per the ISU Catalog. The prescribed courses (Foundation, Discipline, Equine Science emphasis) are all taught by faculty in the Animal Science Department. Other courses are part of menus (Equine Management and Expertise Expansion), so students have options to fill those requirements.

13. Attach to the program proposal, letters of support, recommendations, and statements when appropriate, from programs and departments at ISU which are associated with the proposed program or have an interest in the proposed program.

We have consulted Agriculture Education and Studies and Economics. The programs have provided feedback and general support. Those letters are in the appendix. In general, there was enthusiasm for inclusion of some courses from broader curriculum choices. In addition, there was consensus that some students in those programs might see an opportunity to pursue this certificate to enhance their own program of study. Based on the Economics response the term Expertise Expansion is used instead of Enterprise Management.

14. If the new program is interdisciplinary, a governance document should be created and submitted to the Associate Provost for Academic Programs. Indicate here that it has been completed.

The Animal Science Department coordinates this program. There are courses in other programs, but this is not an interdisciplinary program. Therefore, an interdisciplinary governance document is not necessary.

PROPOSAL FOR Equine Science and MANAGEMENT CERTIFICATE APPENDIX

Table of Contents

Example Four Year Plan for Animal Science Undergraduate Student with the Equine Science and Management Certificate

Comments from Programs

Agricultural Business

Agricultural Education and Studies

Academic Program Approval Voting Record

Freshman			
Fall	Credits	Spring	Credits
AN S 110		1 AN S 114	2
AN S 101		2 CHEM 177, 177L or CHEM 163, 163L	5
BIOL 211		3 Humanities - elective list	3
BIOL 211L		1 SP CM 212, AGEDS 311, or COMST 214	3
ENGL 150		3 BIOL 212	3
LIB 160		1 BIOL 212L	1
MATH 140, 150, 160, or 165	3 to 4		
Soc. Sci. - elective list		3	
	17-18		17
Sophomore			
Fall	Credits	Spring	Credits
AN S 211		1 AN S 210	1
AN S 216		3 AN S 214	3
AN S 200 - elective list		3 AN S 214L	1
STAT 101 104, or 226	3 to 4	AN S 200 - elective list	3
BBMB 221		3 ENGL 250	3
ECON 101		3 MICRO 201 & 201L or MICRO 302 & 302L	3 to 4
		ANS 306	3
	17		17-18
Junior			
Fall	Credits	Spring	Credits
AN S 319		3	
AN S 331		3 AN S 320	3
GEN 320 or BIOL 313		3 AN S 352	3
Ethics -elective list		3 ANS 306	3
ANS 317B		3 U.S. Diversity - elective list	3
		Free elective	3
	15		15
Senior			
Fall	Credits	Spring	Credits
AN S 411		1 AN S 400 - Option 2	3
AN S 415		3 International Perspective - elective list	3
ENGL 302, 309, 312, or 314		3 ANS 332E	1
ANS 399 (Equine Internship)		3 Free elective	3
AN S 400 Option 1		3 Free elective	2
ANS 336		3	
	16		
			14
In this example of a Four year plan in AN S degree with Certificate			
Red are unique to the Certificate	ANS 415, ANS 306, AN		9
Green are also in the certificate	ANS 216, 320, 331, 336		15
			24
Minimum listed here is 128 credits, but several choices might take it to 130			

From: [Wohlgemuth, Darin R \[ECON\]](#)
To: [Auwerda, Peggy A \[AN S\]](#)
Cc: [Rosenbloom, Joshua L \[ECON\]](#)
Subject: RE: Equine Science and Management Certificate
Date: Tuesday, November 17, 2020 5:28:13 PM

Peggy,

Thank you for the opportunity to provide input on the Equine Science and Management Certificate. I'm sorry if I missed the committee meeting last week.

We are not opposed to the certificate program moving forward. We expect to be able to handle the students that would enroll in ECON 230 or 334 as a result of this without increases in the number of sections. It is not clear at this point how many of the Ag Business students will be interested in adding this certificate.

One area that I want to point out for the committee to consider is the course listed under the Enterprise Management include four Animal Science courses (AN S 333, 336, 337, and 345). From the titles of these courses, these seem to be more closely related to the Equine Science side rather than the management side. The long term concern would be that students could graduate with the Science and Management certificate without a course that is related to business/economic side of an Equine operation. These students would be well versed in Equine Science, without understanding of the business management side of an operation. A possible option for the committee to consider is moving the 4 Animal Science courses into another area to ensure that certificate holders have at least 1 course on the business management training.

Aside from this point for the committee to consider, we are not opposed to the certificate moving forward.

Best regards,
Darin

Enjoy Your Adventure!

Darin Wohlgemuth, Ph.D.
Associate Teaching Professor
Director of Undergraduate Studies
Academic Advisor

174 Heady Hall
Department of Economics
518 Farm House Lane
Iowa State University
Ames, IA 50011-1054
515-294-8178 (Office)

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From: Auwerda, Peggy A [AN S] <peggy@iastate.edu>
Sent: Wednesday, November 11, 2020 12:23 PM
To: Wohlgemuth, Darin R [ECON] <darinw@iastate.edu>
Subject: Equine Science and Management Certificate

Dear Dr. Wohlgemuth,

Our Animal Science department curriculum committee has been developing certificate programs to help our students customize their program of study and document their achievement in a certificate. I am contacting you to ask for your feedback on an Equine Science and Management certificate. The proposal is attached to this email. We would like your comments regarding the program for review and consideration by our committee. Your comments will become part of the proposal that, if approved by our committee, will begin the process of departmental, college, and university approval. I am asking for your input and commentary because:

1. Students in your program could be interested in this program.
2. You might have other suggestions for courses in our menus.
3. We value your input.

If you can make some comments to me by Friday morning, I will make sure we consider your comments in our deliberations. If there is a different person in your program that I should contact with this request, please let me know.

Best Regards,

Peggy Miller-Auwerda | Department of Animal Science
Iowa State University Extension and Outreach
Iowa Extension and Outreach Equine Specialist
119 Kildee
806 Stange Rd
Ames, IA 50011-1178
515-294-5260

From: [Smalley, Scott W \[AGEDS\]](#)
To: [Auwerda, Peggy A \[AN S\]](#)
Subject: RE: Equine Science and Management Certificate
Date: Wednesday, November 11, 2020 1:37:32 PM

Thank you for sharing with agricultural education and studies. We believe the certificate will be a great option for our students.

From: Auwerda, Peggy A [AN S] <peggy@iastate.edu>
Sent: Wednesday, November 11, 2020 12:23 PM
To: Smalley, Scott W [AGEDS] <smalle16@iastate.edu>
Subject: Equine Science and Management Certificate

Dear Dr. Smalley

Our Animal Science department curriculum committee has been developing certificate programs to help our students customize their program of study and document their achievement in a certificate. I am contacting you to ask for your feedback on an Equine Science and Management certificate. The proposal is attached to this email.

We would like your comments regarding the program for review and consideration by our committee. Your comments will become part of the proposal that, if approved by our committee, will begin the process of departmental, college, and university approval. I am asking for your input and commentary because:

1. Students in your program could be interested in this program.
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If you can make some comments to me by Friday morning, I will make sure we consider your comments in our deliberations. If there is a different person in your program that I should contact with this request, please let me know.

Best Regards,
Peggy

Peggy Miller-Auwerda | Department of Animal Science
Iowa State University Extension and Outreach
Iowa Extension and Outreach Equine Specialist
119 Kildee
806 Stange Rd
Ames, IA 50011-1178
515-294-5260
Cell 515-290-9797
peggy@iastate.edu

Academic Program Approval Voting Record

This document is to be appended as the last page of the proposal for any new or revised academic program to record the successive votes of approval as the proposal moves through its required review and approval steps. Consult Faculty Handbook Section 10.8 or the Faculty Senate Curriculum Committee website for information regarding Committee review and voting requirements for each action.

Curricular Action: (check appropriate boxes below)

1. New Program Name Change Discontinuation Concurrent Degree for:
2. Undergraduate Major Graduate Major Undergraduate Minor Graduate Minor
 Undergraduate Certificate Graduate Certificate Other: _____
3. Name of Proposed Change: Equine Science and Management
4. Name of Contact Person: Elisabeth Huff-Lonergan e-mail address: elonerga@iastate.edu
5. Primary College: CALS Secondary College: _____
6. Involved Department(s): _____

Voting record for this curricular action:

Voting Body	Votes			Date of Vote
	For	Against	Abstain	
Dept. or Program Committee				
Animal Science Curriculum Committee	9	0		November 20, 2020
Animal Science Faculty	36	0		January 11, 2021
College Curriculum Committee	15	0	0	February 5, 2021
College Approval Vote	81	1	3	February 15, 2021
Faculty Senate Curriculum Committee	5	0	0	February 16, 2021
Faculty Senate Academic Affairs Council	10	0	0	March 10, 2021
Faculty Senate				