MISSISSIPPI STATE UNIVERSITY™

UNIVERSITY COMMITTEE ON COURSES AND CURRICULA

A MEMORANDUM

DATE: March 12, 2018

TO: UCCC Members

FROM: Dr. Dana Pomykal Franz, Chair

SUBJECT: March 23, 2018 Meeting

Enclosed are the minutes from the meeting on February 16, 2018 and the agenda and proposals for the meeting on **Friday, March 23, 2018 beginning at 1:30 p.m.** The meeting will be held in Room 324 of the Student Union. Please contact the UCCC office if you are unable to attend.

Thank you.

Enclosures: February 16, 2018 Meeting Minutes
Course/Curriculum Proposals

Post Office Box 5268 • Starkville, MS 39762 • Office: (662) 325-9410 • Fax: (662) 325-1846

AGENDA
UNIVERSITY COMMITTEE ON COURSES AND CURRICULA
March 23, 2018

1. **Welcome**
2. **Approval of minutes**
3. **Course proposals by college/school:**

AGRICULTURE AND LIFE SCIENCES

Modification	ABE 4843/6843	Sustainable Communities
Addition	FDM 2153	Fashion Apparel Analysis
Modification	FDM 2593	Product Development II
Addition	FDM 3221	Internship Preparation
Modification	FDM 3553	Fashion Retail Pricing and Inventory Management
Addition	FDM 4424/6424	Teaching Methods in Agricultural and Human Sciences
Modification	FDM 4513/6513	Fashion Consumer Behavior
Modification	FDM 4603/6603	Global Sourcing in the Textile and Apparel Industry
Modification	FDM 4693/6693	Digital Fashion Retailing
+Distance	HDFS 3813	Lifespan Theory
Modification	LA 4843/6843	Sustainable Communities

ARTS AND SCIENCES

+Distance	GR 6643	Physical Climatology (split level with GR 4643)
+Distance	GR 4963/6963	Mesoscale Meteorology
Modification	GR 8333	Field Techniques in Remote Sensing
Addition	PPA 8183	Local Government Finance
Addition +Distance	SW 4653	Social Work with Family Violence

BUSINESS

+Distance	BIS 3233	Management Information Systems
Addition +Distance	BQA 4423/6423	Business Decision Analysis
+Distance	BUS 4853	Business Policy

EDUCATION

Modification +Distance	EDA 8223	Seminar in Administration
Modification +Distance	EDA 8283	Educational Leadership
Modification +Distance	EDA 8353	Applications of Theory to Educational Administration
Modification +Distance	EDA 8383	Ethical Decision Making in Educational Administration
Modification +Distance	HED 8223	Seminar in Administration

Modification +Distance	HED 8283	Educational Leadership
Modification +Distance	HED 8353	Applications of Theory to Educational Administration
Modification +Distance	HED 8383	Ethical Decision Making in Educational Administration
Modification +Distance	HED 8523	Student Development Theory
Modification	TKI 3223	Industrial Materials
+Distance	PE 8113	Curriculum Construction in Physical Education

ENGINEERING

Addition +Distance	CE 4933/ 6933	An Introduction to the Finite Element Method
Modification	EM 4123/6123	An Introduction to the Finite Element Method
Addition +Distance	ENE 8003	Foundations in Engineering Education
Addition +Distance	ENE 8303	Pedagogy & Assessment in Engineering Education
Addition +Distance	ENE 8703	Design in Engineering Education & Practice

FOREST RESOURCES

Addition	NREC 4573	Ecology of Managed Forests (tabled at February 16, 2018 meeting)

VETERINARY SCIENCE

Addition	CVM 5882	Small Animal Gastroenterology
Addition	CVM 6882	Small Animal Gastroenterology

4. Degree proposals by college/school

AGRICULTURE AND LIFE SCIENCES

Modification	BLA	Bachelor of Landscape Architecture
Modification	BS	Fashion Design & Merchandising
Modification	BS	Human Development and Family Science

ARTS AND SCIENCES

Modification	BS	Geosciences
Modification	Certificate	Broadcast and Operational Meteorology

BUSINESS

+Distance	BBA	Bachelor of Business Administration
Addition	Minor	Business Analytics

ENGINEERING

Modification	BS	Computer Engineering

Modification	BS	Electrical Engineering
Modification	Ph.D.	Engineering Education

FOREST RESOURCES

Modification	BS	Forestry: Environmental Conservation, Forest Management, Forest Products, Wildlife Management, Urban Forestry

University Committee on Courses and Curricula
Mississippi State University
February 16, 2018

Members Present:	Amy Adkerson, Tracey Baham, Randy Campbell, Cody Coyne, Amy Crumpton, Dana Franz, Seamus Freyne, Kevin Hunt, Brenda Kirkland, Pat Matthes, Erin McDevitt, Rob Moore, Emily Owen, Prem Parajuli, Tommy Parker, Andy Perkins, Tommy Phillips, Wendy Roussin, Kathy Sherman-Morris, Barry Stewart, Jenny Turner, Erica Waldman, Jeff Winger, Chien Yu
Absent:	Shrinidhi Ambinakudige, Holly Holladay, Ben Mackin, Charles Provine
Excused:	Russell Carr, Charles Freeman, Trey Howell, Kelly Moser, Greg Olsen, Brad Trinkle, Robert Wolverton
Guests:	Carolyn Adams-Price, Chad Kronkosky, Lynda Moore, Carley Morrison, Kari Reeves, Darrel Schmitz, Tamara Swann

Franz called the meeting to order at 1:30 p.m. on Friday, February 16, 2018 in Trotter Room of the Center for Advanced Vehicular Systems in the Research Park. Franz announced Dr. Kelly Moser is resigning as a member of the UCCC. Dr. Moser had planned to attend the February 16th UCCC meeting but had a conflict. The College of Education will be holding an election to replace Dr. Moser. Franz announced she and Turner will be attending the national convention for the Course Inventory Management software.

Coyne moved to approve the January 19, 2018 UCCC minutes. Roussin seconded the motion. The motion to approve the January 19, 2018 UCCC minutes was approved unanimously.

Perkins moved to approve the addition of PTE 1101 Introduction to Petroleum Engineering, the addition of PTE 4983 Petroleum Engineering Capstone Design, and the modification of the BS in Petroleum Engineering. Dr. Chad Kronkosky appeared in support of the proposals. For **PTE 1101**, the subcommittee that reviewed the proposal and other UCCC members made the following observations: there needs to be a clarification on homework in the syllabus because it is referred to as reading assignments but is also referred to as something that needs to be turned in; under testing in the syllabus, a project is mentioned, but there are not any details about the project; while AOP 12.09 is not required, it would be helpful to students to have it mentioned in the attendance area of the syllabus; while it is not required, it would be helpful to students for the content outline to be included in the syllabus. For **PTE 4983**, the subcommittee that reviewed the proposal and other UCCC members were concerned the syllabus and the course outline are the same documents and recommended the documents be separated with contact hours being included in the course outline. For the modification of the **BS in Petroleum Engineering**, the subcommittee that reviewed the proposal and other UCCC members made the following observations: the program proposal does not currently add up to 128 credit hours; it is not clear whether 3 or 6 hours of geology credits are required; it is not clear whether MA 3253 Differential Equations is required because it is not in the current catalog; six hours of technical electives need to be added to the program proposal; the course number for EM 3213 Mechanics of Materials is listed as ME 3123 Mechanics of Materials in the proposal; a new cover sheet is needed to

correct a course number. Hunt moved to pass the addition of PTE 1101, the addition of PTE 4983, and the modification of the BS in Petroleum Engineering contingent upon the above concerns being addressed. Parajuli seconded the motion. The motion to pass contingent was unanimously approved.

Parajuli moved to approve the addition of CVM 5382 Cytology Elective. Stewart seconded the motion. Committee members were concerned contact hours were not included on the course outline and words appear to be missing in the catalog description. Kirkland moved to pass the addition of CVM 5382 contingent upon the above concerns being addressed. Hunt seconded the motion. The motion to pass CVM 5382 contingent was approved unanimously.

Kirkland moved to approve the additions of NREC 4313 Spatial Technologies in Natural Resources Management and NREC 4573 Ecology of Managed Forests. Hunt seconded the motion. For NREC 4313, the subcommittee that reviewed the proposal was concerned about a statement included in the syllabus about students' vision and wanted to be sure it meets the standards of the Americans with Disabilities Act. The subcommittee was also concerned the lecture/laboratory contact hours were not separated in the course outline, so it is difficult to determine if they are sufficient. The UCCC received an email from the Geosciences Department that they have no objection to this course. Kirkland requested the email be attached to the proposal. The subcommittee had no suggestions for NREC 4573. Crumpton moved to table the additions of NREC 4313 and NREC 4573. Roussin seconded the motion. The motion to table was unanimously approved.

Crumpton moved to approve the addition of WFA 4113/6113 Animal Behavior. Roussin seconded the motion. Dr. Kristin Evans appeared in support of the proposal. Subcommittee members who reviewed the proposal recommended the course be described as a "two hours lecture/two hours lab" instead of a "two hours lecture/four hours lab" since travel cannot be included in the instructional time. Dr. Evans agreed "two hours lecture/two hours lab" would be a better description and will make the revision. Hunt moved to pass WFA 4113/6113 contingent upon the above concern being addressed. Campbell seconded the motion. The motion to pass WFA 4113/6113 contingent was unanimously approved.

Hunt moved to approve the addition of WFA 8663 Movement Ecology. Parajuli seconded the motion. Subcommittee members who reviewed the proposal noticed there is a typographical error in the grading scale. The motion to approve WFA 8663 was unanimously approved.

Stewart moved to approve the addition of distance education to AELC 3203 Professional Writing in Agriculture, Natural Resources, and Human Sciences. Parajuli seconded the motion. The subcommittee that reviewed the proposal questioned if an exam could be optional as proposed. Franz said she could check with Dr. Peter Ryan in the Provost Office to determine if an exam could be optional. Dr. Carley Morrison appeared in support of the proposal. Dr. Morrison said she would remove the wording about the exam being optional. Coyne moved to pass the addition of distance education to AELC 3203 contingent upon the above concern being addressed. The motion to pass contingent was unanimously approved.

Parajuli moved to remove the proposal to modify the minor in Gerontology from the table. Crumpton seconded the motion. Dr. Carolyn Adams-Price appeared in support of the proposal. The subcommittee that reviewed the proposal made the following observations: on page two of the course outline, the wording "Choose one of the following (may include courses from above)" may be confusing to students

and needs to be clarified; it is unclear whether the proposal is modifying a minor or a certificate; it is not clear why graduate information is being included in the catalog description but 6000 courses are not being indicated on the proposal. Roussin moved to approve proposal to modify the minor in Gerontology contingent upon the above concerns being addressed. Kirkland seconded the motion. The motion to pass contingent was approved unanimously.

Parajuli moved to approve the modifications of the MS and Ph.D. in Human Development and Family Studies. Phillips seconded the motion. Phillips indicated new cover sheets will be prepared with the current name of the program since IHL has not approved the revised name. The motion to approve the modifications of the MS and Ph.D. in Human Development and Family Studies was approved unanimously.

Stewart moved to approve the addition of a minor in Electrical Engineering. Hunt seconded the motion. Dr. J. W. Bruce appeared in support of the proposal. The motion to approve the addition of a minor in Electrical Engineering was approved unanimously.

Roussin moved to approve the addition of GE 8003 Master of Engineering Capstone Course and the addition of distance education to GE 8003. Parajuli seconded the motion. The motion to approve the addition of GE 8003 and the addition of distance education to GE 8003 was unanimously approved.

Kirkland moved to approve the addition of GG 4446/6446 Summer Geology Field Camp. Roussin seconded the motion. Dr. Darrell Schmitz appeared in support. Committee members discussed whether the course is a laboratory or a field based experience. The motion to approve the addition of GG 4446/6446 was unanimously approved.

Hunt moved to adjourn. Moore seconded the motion. The motion to adjourn was approved unanimously. The meeting was adjourned at 3:35 p.m.

APPROVAL FORM FOR

DEGREE PROGRAMS

MISSISSIPPI STATE UNIVERSITY

NOTE: This form is a cover sheet that must accompany the degree program change proposal. The actual proposal should be prepared in accordance with format requirements provided in the *Guide and Format for Curriculum Proposals* published by the UCCC. Both cover sheet and proposal should be submitted, along with all required copies, to UCCC, Garner Hall, Room 279, Mail Stop 9702.

College: CALS **Department:_Landscape Architecture**

Contact Person: Jason B. Walker **Mail Stop: 9725** **E-mail: jbw156@msstate.edu**

Nature of Change: Modification **Date Initiated: Fall 2017 Effective Date: Fall 2018**

Degree to be offered at: MSU

Current Degree Program Name: Bachelor of Landscape Architecture

Major: Landscape Architecture **Concentration: NA**

New Degree Program Name: Bachelor of Landscape Architecture

Major: Landscape Architecture **Concentration: NA**

Summary of Proposed Changes:

There are two proposed changes to the BLA program:

1. **Modify LA 4844/6844 Sustainable Communities from a 4 hour (Three hours lecture. Two hours lab) course to LA 4843/6843 Sustainable Communities 3 hour (Three hours lecture) course.**
2. **Modify and Add LA 1701 Introduction to Landscape Contracting (modify existing course) to the BLA curriculum and the Landscape Contracting Curriculum.**

Approved: _____ Department Head	*Date:* 12-6-17
_____ Chair, College or School Curriculum Committee	01.03.18
_____ Dean of College or School	1/4/18
_____ Chair, University Committee on Courses and Curricula	
_____ Chair, Graduate Council (if applicable)	
_____ Chair, Deans Council	

☐ SACS Letter Sent

☐ IHL Action Required

1. CATALOG DESCRIPTION

No changes are proposed to the existing catalog description.

2. CURRICULUM OUTLINE

DEGREE MODIFICATION OUTLINE FORM

Use the chart below to make modifications to an existing undergraduate degree outline. If any General Education (Core) course is acceptable in the category, please indicate by saying "any Gen Ed course". There is no need to type in the whole list. All deleted courses and information should be shown in *italics* and all new courses and information in **bold**. Include the course prefix, number, and title in both columns. Expand this table as needed.

CURRENT Degree Description		PROPOSED Degree Description	
Degree: Bachelor of Landscape Architecture Major: Landscape Architecture Concentration: NA		Degree: Bachelor of Landscape Architecture Major: Landscape Architecture Concentration: NA	
English: EN 1103 English Comp I or EN 1163 Accelerated Comp I EN 1113 English Comp II or EN 1173 Accelerated Comp II	6	English: EN 1103 English Comp I or EN 1163 Accelerated Comp I EN 1113 English Comp II or EN 1173 Accelerated Comp II	6
Fine Arts (General Education): ART 1113 Art Appreciation or ARC 1013 Arch Appreciation	3	Fine Arts (General Education): ART 1113 Art Appreciation or ARC 1013 Arch Appreciation	3
Natural Sciences (2 labs required from Gen Ed): Any Gen Ed Course	6-9	Natural Sciences (2 **lab based sciences** required from Gen Ed): **See General Education Requirements Natural Science Course List**	6-9
Math (General Education): Any Gen Ed Course	6-9	Math (General Education): Any Gen Ed Course **See General Education Requirements Mathematics and Statistics Course List**	6-9
Humanities (General Education): Any Gen Ed Course	6	Humanities (General Education): Any Gen Ed Course **See General Education Requirements Humanities Course List**	6
Social/Behavioral Sciences (Gen Ed): Any Gen Ed Course	6	Social/Behavioral Sciences (Gen Ed): Any Gen Ed Course **See General Education Requirements Social/Behavioral Sciences Course List**	6
		General Education Total Hours	**36**
Major Core Courses ART 1123 Art Design I LA 1153 Intro to Landscape Architecture LA 1223 Use of Computer in LA LA 1333 Landscape Systems LA 1423 History of LA	 3 3 3 3 3	Major Core Courses **LA 1701 Landscape Professional Career Paths Seminar** ART 1123 Art Design I LA 1153 Intro to Landscape Architecture LA 1223 Use of Computer in LA	 1 3 3 3

LA 1533 Presentation Methods and Media	3	LA 1333 Landscape Systems	3
ENS 2103 Intro to Env. Science	3	LA 1423 History of LA	3
PSS 2423 Plant Materials I	3	LA 1533 Presentation Methods and Media	3
LA 2544 Construction I: Materials	4	ENS 2103 Intro to Env. Science	3
LA 2554 Design I: Site Design	4	PSS 2423 Plant Materials I	3
LA 2652 Precedent Studies	2	LA 2544 Construction I: Materials	4
LA 2644 Construction II: Grading	4	LA 2554 Design I: Site Design	4
LA 2654 Design II: Neighborhood Context	4	LA 2652 Precedent Studies	2
LA 3534 Const. III: Hydrology	4	LA 2644 Construction II: Grading	4
LA 3554 Design III : Town/Rural Context	4	LA 2654 Design II: Neighborhood Context	4
LA 3623 Urban Planning Theory	3	LA 3534 Const. III: Hydrology	4
LA 3652 Case Studies of Ex. Works of LA	2	LA 3554 Design III : Town/Rural Context	4
LA 3653 Plant Design Fund in LA	3	LA 3623 Urban Planning Theory	3
LA 3654 LA Design IV: Urban Design	4	LA 3652 Case Studies of Ex. Works of LA	2
LA 4723 Professional Practice of LA	3	LA 3653 Plant Design Fund in LA	3
LA 4754 LA Design V: Regional Context	4	LA 3654 LA Design IV: Urban Design	4
LA 4844 Sustainable Communities	4	LA 4723 Professional Practice of LA	3
LA 4854 Capstone Studio	4	LA 4754 LA Design V: Regional Context	4
Electives	11	**LA 4843 Sustainable Communities**	3
		LA 4854 Capstone Studio	4
		Electives	11
Oral Communication Requirement Satisfied by successful completion of LA 4854 Capstone Studio		Oral Communication Requirement Satisfied by successful completion of LA 4854 Capstone Studio	
Writing Communication Requirement Satisfied by successful completion of LA 4723 Professional Practice		Writing Communication Requirement Satisfied by successful completion of LA 4723 Professional Practice	
Computer Literacy Satisfied by successful completion of LA 1223 Use of Computer in Landscape Arch		Computer Literacy Satisfied by successful completion of LA 1223 Use of Computer in Landscape Arch	
		Major Core Total Hours	**88**
Total Hours	124	Total Hours	124

3. JUSTIFICATION AND STUDENT LEARNING OUTCOMES

The degree modification changes two courses, LA 1701 and LA 4844. LA 4844 will be modified to be a three-hour lecture only course. LA 1701 will be added to the curriculum to broaden first-year students' knowledge of the career paths in landscape architecture and landscape contracting and management. In 2011, the BLA program added two new design courses LA 3654 Design IV and LA 4754 Design V to the curriculum. After monitoring the curriculum since 2011, the LA faculty believe that making these two modifications will strengthen our program.

The degree modification is modifying two courses, so detailed information and complete review and assessment of the degree program is not required.

4. SUPPORT

Attached is a letter of support from the LA Curriculum Committee Chair.

5. PROPOSED 4-LETTER ABBREVIATION

BLA

6. EFFECTIVE DATE

Fall, 2018

MISSISSIPPI STATE UNIVERSITY
DEPARTMENT OF
LANDSCAPE ARCHITECTURE

COLLEGE OF AGRICULTURE & LIFE SCIENCES
Department of Landscape Architecture
P.O. Box 9725
Mississippi State, MS 39762
P. 662.325.3012
lalc.msstate.edu

December 6, 2017

University Committee on Courses & Curricula
Dana Franz, Chair
281 Garner Hall
Box 9702
Mississippi State, MS 39762

UCCC:

The Department of Landscape Architecture's Curriculum Committee discussed and voted to change the BLA curriculum. Following discussion, the faculty recommended modifying two courses: LA 1701 and LA 4844/6844. LA 4844 Sustainable Communities course is proposed to become LA 4843/6843 Sustainable Communities and be a lecture only course. LA 1701 Introduction to Landscape Contracting is currently not in the BLA program of study. However, the faculty voted to support modifying this course to become LA 1701 Landscape Professional Career Paths Seminar and be integrated into the BLA curriculum. The committee voted to support these two changes to better serve the students in the BLA program.

Sincerely,

Jason B. Walker

Jason B. Walker, ASLA
Undergraduate Coordinator & Curriculum Committee
Department of Landscape Architecture

LA Curriculum Committee:
Robert Brzuszek
Cory Gallo
Timothy Schauwecker
Michael Seymour

cc: SADIK C. ARTUNÇ, FASLA

APPROVAL FORM FOR

DEGREE PROGRAMS

MISSISSIPPI STATE UNIVERSITY

NOTE: This form is a cover sheet that must accompany the degree program change proposal. The actual proposal should be prepared in accordance with format requirements provided in the *Guide and Format for Curriculum Proposals* published by the UCCC. Both cover sheet and proposal should be submitted to UCCC Mail Stop 9702 (281 Garner Hall), Phone: 325-9410.

College: College of Agriculture and Life Sciences Department: School of Human Sciences
Contact Person: Charles Freeman Mail Stop: 9745 E-mail: cf617@msstate.edu
Nature of Change: Degree modification Date Initiated: 01/18 Effective Date: Fall 2018

Current Degree Program Name:
Major: Fashion Design & Merchandising Concentration: Merchandising/Design & Product Development

New Degree Program Name:
Major:Fashion Design & Merchandising Concentration: Design & Product Development/Merchandising

Summary of Proposed Changes: Updated the prefix codes for the courses to reflect the new B.S. Degree in Fashion Design and Merchandising; moved some major core courses to concentration core based on new faculty and new accreditation standards; updated emphasis areas to more accurately reflect the course hours.

Approved:	Date:
Michael E. Newman Department Head	2-8-18
Chair, College or School Curriculum Committee	2.23.18
For, GH 2/23/18 Dean of College or School	2/23/18
Chair, University Committee on Courses and Curricula	
Chair, Graduate Council(if applicable)	
Chair, Deans Council	

1. Catalog Description

Current: This program is designed to provide students with an understanding of fashion and textile industries, consumer behavior, product development, business principles, and technology applications. Students select a concentration in one of two areas: Merchandising or Design and Product Development. Merchandising combines an overview of the fashion industry, consumer behavior, product development, planning, buying business operations and entrepreneurship. Design and Product Development emphasizes the total design and production process from inception to finished product and its ultimate sale to the consumer. Specialized labs and industry software provide students with extensive hands-on experience in the latest design, product development, and fashion retailing technology applications. A grade of "C" or better is required for all major courses (Human Sciences courses).

The merchandising concentration explores the business and product development aspects of the apparel industry from finalized design to the end-use by consumers and beyond. This coursework prepares students to be become competent in pursuing careers in merchandising, buying, fashion forecasting, fashion communications, fashion business and retail operations. Students learn real-world application through lab experiences and internships in settings that align with the students' career goals. Students must complete two internships in a related position. The Design and Product Development concentration explores the creative and product development aspects of the apparel industry from trend innovation and concept to an end-use product and beyond. This coursework prepares students to be become competent in pursuing careers in creative design, technical design, visual merchandising, styling, fashion communications, fashion forecasting, and related creative industries. Students learn real-world application through lab experiences and internships in settings that align with the students' career goals. Students must complete two internships in a related position.

Proposed: This program is designed to provide students with an understanding of fashion and textile industries, consumer behavior, product development, business principles, and technology applications. Students select a concentration in one of two areas: Design and Product Development or Merchandising. Design and Product Development emphasizes the total design and production process from concept to finished product and its ultimate sale to the consumer. Merchandising combines an overview of the fashion industry, consumer behavior, product development, planning, buying business operations, and entrepreneurship. Specialized labs and industry software provide students with extensive hands-on experience in the latest design, product development, and fashion retailing technology applications. A grade of "C" or better is required for all major courses (Human Sciences courses).

The design and product development concentration explores the creative and product development aspects of the apparel industry from trend innovation and concept to an end-use product and beyond. This coursework prepares students to be become competent in pursuing careers in creative design, technical design, styling, fashion communications, fashion forecasting, and related creative industries. The merchandising concentration explores the business and product development aspects of the apparel industry from finalized design to the end-use by consumers and beyond. This coursework prepares students to be become competent in pursuing careers in merchandising, buying, fashion forecasting, fashion communications, fashion business, and retail operations. Students learn real-world application through lab experiences and internships in settings that align with the students' career goals. Students must complete two internships in a related position. Students learn real-world application through lab experiences and internships in settings that align with the students' career goals. Students must complete two internships in a related position.

2. Curriculum Outline

Use the chart below to make modifications to an existing undergraduate degree outline. If any General Education (Core) course is acceptable in the category, please indicate by saying "any Gen Ed course". There is no need to type in the whole list. All deleted courses and information should be shown in *italics* and all new courses and information in **bold**. Include the course prefix, number, and title in both columns. Expand this table as needed.

CURRENT Degree Description	PROPOSED Degree Description
Degree: Bachelor of Science Major: Fashion Design and Merchandising Concentration: *Merchandising*	Degree: Bachelor of Science Major: Fashion Design and Merchandising Concentration:
This program is designed to provide students with an understanding of fashion and textile industries, consumer behavior, product development, business principles, and technology applications. Students select a concentration in one of two areas: *Merchandising or Design and Product Development. Merchandising combines an overview of the fashion industry, consumer behavior, product development, planning, buying business operations and entrepreneurship. Design and Product Development emphasizes the total design and production process from inception to finished product and its ultimate sale to the consumer.* Specialized labs and industry software provide students with extensive hands-on experience in the latest design, product development, and fashion retailing technology applications. A grade of "C" or better is required for all major courses (Human Sciences courses).	This program is designed to provide students with an understanding of fashion and textile industries, consumer behavior, product development, business principles, and technology applications. Students select a concentration in one of two areas: **Design and Product Development or Merchandising. Design and Product Development emphasizes the total design and production process from concept to finished product and its ultimate sale to the consumer. Merchandising combines an overview of the fashion industry, consumer behavior, product development, planning, buying business operations and entrepreneurship.** Specialized labs and industry software provide students with extensive hands-on experience in the latest design, product development, and fashion retailing technology applications. A grade of "C" or better is required for all major courses (Human Sciences courses).
The merchandising concentration explores the business and product development aspects of the apparel industry from finalized design to the end-use by consumers and beyond. This coursework prepares students to be become competent in pursuing careers in merchandising, buying, fashion forecasting, fashion communications, fashion business and retail operations. Students learn real-world application through lab experiences and internships in settings that align with the students' career goals. Students must complete two internships in a related position. The Design and Product Development concentration explores the creative and product development aspects of the apparel industry from trend innovation and concept to an end-use product and beyond. This coursework prepares students to be become competent in pursuing careers in creative design, technical design, visual merchandising, styling, fashion communications, fashion forecasting, and related creative industries. Students learn real-world application through lab experiences and internships in settings that align with the students' career goals. Students must complete two internships in a related position.	**The design and product development concentration explores the creative and product development aspects of the apparel industry from trend innovation and concept to an end-use product and beyond. This coursework prepares students to be become competent in pursuing careers in creative design, technical design, styling, fashion communications, fashion forecasting, and related creative industries. The merchandising concentration explores the business and product development aspects of the apparel industry from finalized design to the end-use by consumers and beyond. This coursework prepares students to be become competent in pursuing careers in merchandising, buying, fashion forecasting, fashion communications, fashion business and retail operations. Students learn real-world application through lab experiences and internships in settings that align with the students' career goals. Students must complete two internships in a related position. Students learn real-world application through lab experiences and internships in settings that align with the students' career goals. Students must complete two internships in a related position.**

CURRENT CURRICULUM OUTLINE	Required Hours	PROPOSED CURRICULUM OUTLINE	Required Hours
English (Ex: EN 1103 English Comp I):	6	English (Ex: EN 1103 English Comp I):	6
Fine Arts (General Education):	3	Fine Arts (General Education):	3
Natural Sciences (2 labs required from Gen Ed): 2 labs required from Gen Ed	6-*8*	Natural Sciences (2 lab sciences required from Gen Ed): 2 lab sciences required from Gen Ed	**6**
Extra Science (if appropriate) *CH 1043 Intro to Chemistry*	3	Extra Science (if appropriate) **Any Gen Ed Science Course**	3
Math (General Education): MA 1313 BQA 2113 Business Statistics* OR ST 2113 Intro to Stats *Required for Pre – MBA emphasis (B or higher in MBA prerequisite courses)	6	Math (General Education): MA 1313 BQA 2113 Business Statistics* OR ST 2113 Intro to Stats *Required for Pre – MBA emphasis (B or higher in MBA prerequisite courses)	6
Humanities (General Education): 3 hours Foreign Language 3 hours Gen Ed course	6	Humanities (General Education): 3 hours Foreign Language 3 hours Gen Ed course	6
Social/Behavioral Sciences (General Education): PSY 1013 General Psychology OR SO1003 Introduction to Sociology* AND EC 2113 Principles of Macroeconomics *EC 2123 Principles of Microeconomics* *Required for the Sociology emphasis	*9*	Social/Behavioral Sciences (General Education): PSY 1013 General Psychology OR SO1003 Introduction to Sociology* AND EC 2113 Principles of Macroeconomics *Required for the Sociology emphasis **Total General Education**	**6** **36**
Major Core Courses Major Core Courses *HS* 1523 Visual Design in Dress *HS 1533 Apparel Design I* HS 1701 Survey of Human Sciences *HS* 2524 Textiles for Apparel *HS* 2553 *Fashion Merchandising* *HS 2573 Fashion Portfolio Development* *HS* 2593 Product Development II *HS* 3553 *Fashion Retailing*		Major Core Courses **FDM** 1523 Visual Design in Dress **FDM** 2524 Textiles for Apparel **FDM** 2553 **Intro to Fashion Industry** **FDM** 2593 Product Development II **FDM 3221** Internship Preparation **FDM** 3553 **Fashion Retail Mathematics** **FDM** 3563 Visual Merchandising **FDM** 3573 Historic Costume HS 1701 Survey of Human Sciences	**42**

HS 3563 Visual Merchandising *HS* 3573 Historic Costume *HS 3593 Merchandising & Promotion Strategies* *HS 4701 Internship Placement Seminar* HS 4702 Human Sciences Senior Seminar *HS 4711 Apparel, Textiles, and Merchandising Portfolio* *HS* 4763 Apparel, Textiles & Merch. Internship (6)* Oral Communication Requirement *HS* 4424 Teaching Methods in Ag and HS Writing Requirement *HS 4513 Social-Psych Aspects of Clothing* Computer Literacy *HS* 2123 Product Development I *Two 3 credit hour internships are required.		HS 4702 Human Sciences Senior Seminar **FDM** 4763 **Fashion Design & Merchandising** Internship (6)* Oral Communication Requirement **FDM** 4424 Teaching Methods in Ag and HS Writing Requirement **FDM 4513 Fashion Consumer Behavior** Computer Literacy **FDM** 2123 Product Development I *Two 3-credit-hour internships are required.	
Concentration Courses Required: *HS* 4343 *Apparel Design II* *HS* 4593 Creative Design *Techniques* *HS* 4733 Computer-Aided Design for *Human Sciences* *Select one of the emphasis areas below:* General Design and Product Development Choose 18 hours from any of the courses offered in the emphasis areas below. 4 hours electives Art Choose 18 credit hours of courses with an ART prefix. One or more 1000-level courses and one 2000-level course must be completed in addition to at least three 3000- or 4000-level courses 4 hours electives		**Design and Product Development** Concentration Courses Required: **FDM 1533 Apparel Construction** **FDM 2573 Fashion Portfolio Development** **FDM** 4343 **Patternmaking** **FDM 4363 Draping** **FDM** 4593 Creative Design **FDM** 4733 Computer-Aided Design for **Fashion** *Select one of the emphasis areas below:* General Design and Product Development Choose 18 hours from any of the courses offered in the emphasis areas below **or select program-related electives approved by academic advisor.** Art Choose 18 credit hours of courses with an ART prefix. One or more 1000-level courses and one 2000-level course must	**36**

Business Administration (Pre – MBA) Choose any *5* of the following: ACC 2013 Principles of Financial Accounting* ACC 2023 Principles of Managerial Accounting BIS 3233 Management Information Systems BL 2413 The Legal Environment of Business BQA 2113 Business Statistical Methods I* BQA 3123 Business Statistical Methods II* FIN 3123 Financial Management* MGT 3114 Principles of Management and Production * MKT 3013 Principles of Marketing *9 – 10 hours electives* *Required for Pre – MBA emphasis (B or higher in MBA prerequisite courses) Communication Studies Choose the following 6 courses: CO 1223 Intro. to Communication Theory CO 2253 Fund. of Interpersonal Communication CO 3833 Interviewing in Communication CO 4203 Nonverbal Communication CO 4223 Advanced Communication Theory CO 4243 Rhetorical Theory *7 hours electives* Entrepreneurship[1] Choose the following 6 courses: MGT 3323 Entrepreneurship MGT 3333 Field Studies in Entrepreneurship BL 4243 Legal Aspects of Entrepreneurship FIN 4323 Entrepreneurial Finance/Venture Capital MKT 4423 Strategic Brand Management GE 3011 Engineering Entrepreneurship Seminar		be completed in addition to at least three 3000- or 4000-level courses Business Administration (Pre – MBA) Choose any **6** of the following: ACC 2013 Principles of Financial Accounting* ACC 2023 Principles of Managerial Accounting BIS 3233 Management Information Systems BL 2413 The Legal Environment of Business BQA 2113 Business Statistical Methods I* BQA 3123 Business Statistical Methods II* **EC 2123 Microeconomics** FIN 3123 Financial Management* MGT 3114 Principles of Management and Production * MKT 3013 Principles of Marketing *Required for Pre – MBA emphasis (B or higher in MBA prerequisite courses) Communication Studies Choose the following 6 courses: CO 1223 Intro. to Communication Theory CO 2253 Fund. of Interpersonal Communication CO 3833 Interviewing in Communication CO 4203 Nonverbal Communication CO 4223 Advanced Communication Theory CO 4243 Rhetorical Theory Entrepreneurship Choose the following 6 courses: MGT 3323 Entrepreneurship MGT 3333 Field Studies in Entrepreneurship BL 4243 Legal Aspects of Entrepreneurship FIN 4323 Entrepreneurial Finance/Venture Capital MKT 4423 Strategic Brand	

9 hours electives Finance Choose the following 6 courses: FIN 3113 Financial Systems FIN 3123 Financial Management FIN 3723 Financial Markets FIN 4223 Intermediate Financial Management FIN 4423 Investments FIN 4923 International Financial Management *7 hours electives* Information Technology Services Choose any 6 of the following courses: TKB 3133 Administrative Management and Procedures TKB 4283 Advanced Office Systems TKB 4543 Advanced Information Processing TKB 4563 Introduction to Data Networks TKB 4583 Graphic and Web Design TKT 3463 Computer Repair and Maintenance TKT 4343 Information Technology Project Management TKT 4743 Desktop Publishing TKT 4753 Presenting with Media TKT 4813 Introduction to Instructional Systems *7 hours electives* Management Choose the following 3 courses: MGT 3813 Organizational Behavior MGT 3114 Principles of Management & Production MGT 3513 Intro Human Resource Management Choose any 3 of the following courses: MGT 3323 Entrepreneurship MGT 3333 Field Studies/Entrepreneurship MGT 4153 Organizational Theory MGT 4533 Advanced Human Resource Management MGT 4543 Compensation Management		Management GE 3011 Engineering Entrepreneurship Seminar Finance Choose the following 6 courses: FIN 3113 Financial Systems FIN 3123 Financial Management FIN 3723 Financial Markets FIN 4223 Intermediate Financial Management FIN 4423 Investments FIN 4923 International Financial Management Information Technology Services Choose any 6 of the following courses: TKB 3133 Administrative Management and Procedures TKB 4283 Advanced Office Systems TKB 4543 Advanced Information Processing TKB 4563 Introduction to Data Networks TKB 4583 Graphic and Web Design TKT 3463 Computer Repair and Maintenance TKT 4343 Information Technology Project Management TKT 4743 Desktop Publishing TKT 4753 Presenting with Media TKT 4813 Introduction to Instructional Systems Management Choose the following 3 courses: MGT 3813 Organizational Behavior MGT 3114 Principles of Management & Production MGT 3513 Intro Human Resource Management Choose any 3 of the following courses: MGT 3323 Entrepreneurship MGT 3333 Field Studies/Entrepreneurship MGT 4153 Organizational Theory MGT 4533 Advanced Human Resource Management MGT 4543 Compensation Management MGT 4553 Collective Bargaining	

MGT 4553 Collective Bargaining MGT 4563 Staffing in Organizations MGT 4613 Cross-Cultural Management MGT 3823 Responsible Leadership *6 hours electives* <u>Marketing</u> Choose the following 2 courses: MKT 3013 Principles of Marketing MKT 4413 Consumer Behavior Choose any 4 of the following courses: MKT 4213 Internet Marketing MKT 3213 Retailing MKT 4113 Personal Selling MKT 4123 Advertising MKT 4533 Marketing Research MKT 4143 Sales Management MKT 4613 Services Marketing MKT 3933 International Marketing MKT 3323 International Logistics MKT 4233 International Transportation MKT 4313 Physical Distribution Management MKT 4333 International Supply Chain Management *7 hours electives* <u>Sociology</u> Choose the following 2 courses: SO 2203 Racial Minorities SO 3213 Introduction to Social Research Choose any 3 SO designated courses at the 2000 level or above and include at least *one* 4000 level SO course. *10 hours electives*		MGT 4563 Staffing in Organizations MGT 4613 Cross-Cultural Management MGT 3823 Responsible Leadership <u>Marketing</u> Choose the following 2 courses: MKT 3013 Principles of Marketing MKT 4413 Consumer Behavior Choose any 4 of the following courses: MKT 4213 Internet Marketing MKT 3213 Retailing MKT 4113 Personal Selling MKT 4123 Advertising MKT 4533 Marketing Research MKT 4143 Sales Management MKT 4613 Services Marketing MKT 3933 International Marketing MKT 3323 International Logistics MKT 4233 International Transportation MKT 4313 Physical Distribution Management MKT 4333 International Supply Chain Management <u>Sociology</u> Choose the following 2 courses: SO 2203 Racial Minorities SO 3213 Introduction to Social Research Choose any 3 SO designated courses at the 2000 level or above and include at least **1** 4000 level SO course. **<u>Free Electives</u>** **10 hours electives**	
Total Hours	124	Total Hours	124
Concentration Courses <u>Required:</u> *HS* 4533 Merch. Planning and Buying *HS* 4603 Global Sourcing in the Textile and Apparel Industry *Select one of the emphasis areas below:* <u>General Merchandising</u>		**Merchandising** Concentration Courses <u>Required:</u> **FDM 2153 Fashion Product Analysis** **FDM 2333 Intro to Buying and Mgmt** **FDM** 4533 Merch. Planning and Buying **FDM 4583 Fashion Entrepreneurship** **FDM** 4603 Global Sourcing in the Textile and Apparel Industry	**36**

Choose 18 hours from any of the courses offered in the emphasis areas below. *7 hours electives* Business Administration (Pre – MBA) Choose any *5* of the following: ACC 2013 Principles of Financial Accounting* ACC 2023 Principles of Managerial Accounting BIS 3233 Management Information Systems BL 2413 The Legal Environment of Business BQA 2113 Business Statistical Methods I* BQA 3123 Business Statistical Methods II* FIN 3123 Financial Management* MGT 3114 Principles of Management and Production * MKT 3013 Principles of Marketing *9 – 10 hours electives* *Required for Pre – MBA emphasis (B or higher in MBA prerequisite courses) Communication Studies Choose the following 6 courses: CO 1223 Intro. to Communication Theory CO 2253 Fund. of Interpersonal Communication CO 3833 Interviewing in Communication CO 4203 Nonverbal Communication CO 4223 Advanced Communication Theory CO 4243 Rhetorical Theory *7 hours electives* Entrepreneurship[1] Choose the following 6 courses: MGT 3323 Entrepreneurship MGT 3333 Field Studies in Entrepreneurship BL 4243 Legal Aspects of Entrepreneurship FIN 4323 Entrepreneurial		**FDM 4693 Digital Fashion Retailing** *Select one of the emphasis areas below:* General Merchandising Choose 18 hours from any of the courses offered in the emphasis areas below **or select program related electives approved by academic advisor.** Business Administration (Pre – MBA) Choose any **6** of the following: ACC 2013 Principles of Financial Accounting* ACC 2023 Principles of Managerial Accounting BIS 3233 Management Information Systems BL 2413 The Legal Environment of Business BQA 2113 Business Statistical Methods I* BQA 3123 Business Statistical Methods II* **EC 2123 Microeconomics** FIN 3123 Financial Management* MGT 3114 Principles of Management and Production * MKT 3013 Principles of Marketing *Required for Pre – MBA emphasis (B or higher in MBA prerequisite courses) Communication Studies Choose the following 6 courses: CO 1223 Intro. to Communication Theory CO 2253 Fund. of Interpersonal Communication CO 3833 Interviewing in Communication CO 4203 Nonverbal Communication CO 4223 Advanced Communication Theory CO 4243 Rhetorical Theory Entrepreneurship Choose the following 6 courses: MGT 3323 Entrepreneurship MGT 3333 Field Studies in Entrepreneurship	

Finance/Venture Capital MKT 4423 Strategic Brand Management GE 3011 Engineering Entrepreneurship Seminar *9 hours electives* Finance Choose the following 6 courses: FIN 3113 Financial Systems FIN 3123 Financial Management FIN 3723 Financial Markets FIN 4223 Intermediate Financial Management FIN 4423 Investments FIN 4923 International Financial Management *7 hours electives* Information Technology Services Choose any 6 of the following courses: TKB 3133 Administrative Management and Procedures TKB 4283 Advanced Office Systems TKB 4543 Advanced Information Processing TKB 4563 Introduction to Data Networks TKB 4583 Graphic and Web Design TKT 3463 Computer Repair and Maintenance TKT 4343 Information Technology Project Management TKT 4743 Desktop Publishing TKT 4753 Presenting with Media TKT 4813 Introduction to Instructional Systems *7 hours electives* Management Choose the following 3 courses: MGT 3813 Organizational Behavior MGT 3114 Principles of Management & Production MGT 3513 Intro Human Resource Management Choose any 3 of the following courses: MGT 3323 Entrepreneurship MGT 3333 Field Studies/Entrepreneurship		BL 4243 Legal Aspects of Entrepreneurship FIN 4323 Entrepreneurial Finance/Venture Capital MKT 4423 Strategic Brand Management GE 3011 Engineering Entrepreneurship Seminar Finance Choose the following 6 courses: FIN 3113 Financial Systems FIN 3123 Financial Management FIN 3723 Financial Markets FIN 4223 Intermediate Financial Management FIN 4423 Investments FIN 4923 International Financial Management Information Technology Services Choose any 6 of the following courses: TKB 3133 Administrative Management and Procedures TKB 4283 Advanced Office Systems TKB 4543 Advanced Information Processing TKB 4563 Introduction to Data Networks TKB 4583 Graphic and Web Design TKT 3463 Computer Repair and Maintenance TKT 4343 Information Technology Project Management TKT 4743 Desktop Publishing TKT 4753 Presenting with Media TKT 4813 Introduction to Instructional Systems Management Choose the following 3 courses: MGT 3813 Organizational Behavior MGT 3114 Principles of Management & Production MGT 3513 Intro Human Resource Management Choose any 3 of the following courses: MGT 3323 Entrepreneurship MGT 3333 Field Studies/Entrepreneurship	

MGT 4153 Organizational Theory MGT 4533 Advanced Human Resource Management MGT 4543 Compensation Management MGT 4553 Collective Bargaining MGT 4563 Staffing in Organizations MGT 4613 Cross-Cultural Management MGT 3823 Responsible Leadership *6 hours electives* <u>Marketing</u> Choose the following 2 courses: MKT 3013 Principles of Marketing MKT 4413 Consumer Behavior Choose any 4 of the following courses: MKT 4213 Internet Marketing MKT 3213 Retailing MKT 4113 Personal Selling MKT 4123 Advertising MKT 4533 Marketing Research MKT 4143 Sales Management MKT 4613 Services Marketing MKT 3933 International Marketing MKT 3323 International Logistics MKT 4233 International Transportation MKT 4313 Physical Distribution Management MKT 4333 International Supply Chain Management *7 hours electives* <u>Sociology</u> Choose the following 2 courses: SO 2203 Racial Minorities SO 3213 Introduction to Social Research Choose any 3 SO designated courses at the 2000 level or above and include at least *one* 4000 level SO course. *10 hours electives*		MGT 4153 Organizational Theory MGT 4533 Advanced Human Resource Management MGT 4543 Compensation Management MGT 4553 Collective Bargaining MGT 4563 Staffing in Organizations MGT 4613 Cross-Cultural Management MGT 3823 Responsible Leadership <u>Marketing</u> Choose the following 2 courses: MKT 3013 Principles of Marketing MKT 4413 Consumer Behavior Choose any 4 of the following courses: MKT 4213 Internet Marketing MKT 3213 Retailing MKT 4113 Personal Selling MKT 4123 Advertising MKT 4533 Marketing Research MKT 4143 Sales Management MKT 4613 Services Marketing MKT 3933 International Marketing MKT 3323 International Logistics MKT 4233 International Transportation MKT 4313 Physical Distribution Management MKT 4333 International Supply Chain Management <u>Sociology</u> Choose the following 2 courses: SO 2203 Racial Minorities SO 3213 Introduction to Social Research Choose any 3 SO designated courses at the 2000 level or above and include at least **1** 4000 level SO course. **<u>Free Electives</u>** **10 hours electives**	
Total Hours	124	Total Hours	124

3. Justification and Student Learning Outcomes

Recently, the Fashion Design and Merchandising program was approved to offer a stand-alone B.S. degree. Since that time, we have hired a new faculty member in the design and product development area and have had a senior faculty member retire. In addition, we are completing our American Association of Family and Consumer Sciences accreditation this year and will be submitting for the International

Textiles and Apparel Association accreditation in 2018-2019. The changes made to the degree structure not only reflect the change in faulty expertise but also the changes to the accreditation standards recently presented to us. Learning objectives for the degree are listed below.

- Students will understand the synergistic, integrative nature of the textile and apparel industries with its focus on the apparel production, creative design, product development, merchandising, and retail operations, and students will apply this understanding to the current issues and opportunities of the globalized fashion and retail industry.

- Through their study of fashion consumer behavior, students will understand the interaction and interrelatedness of apparel and dress with society.

- Students will understand the dynamics of the global fashion and retail industry and the effects industrialization has on populations around the world.

- Students will apply knowledge from their programs of study to the issues of creative design, communication of dress, technical and instructional design communication, and the business of a global fashion and retail industry.

- Students will integrate concepts of global interdependence as they relate to apparel and agriculture in their areas of specialization.

- Students will understand and apply appropriate technologies in addressing issues concerning the global fashion and retail industry.

- Students will understand resource development and sustainability and the impact that those concepts have on the growth of the global fashion and retail industry.

4. Support
Please see the attached letters of support.

5. Proposed 4 Letter Abbreviation
FDM

6. Effective Date
Fall 2018

MISSISSIPPI STATE UNIVERSITY

SCHOOL OF HUMAN SCIENCES
P. O. Box 9745
Mississippi State, MS 39762
P: 662.325.2950
humansci.msstate.edu

February 8, 2018

Ms. Jessica Graves
Chair, CALS Curriculum Committee
Box 9815
Mississippi State, MS 39762

Ms. Graves:

The School of Human Sciences Curriculum Committee has reviewed the degree modification proposal for Fashion Design and Merchandising as well as the course proposals associated with the degree modification: FDM 2153 Fashion Apparel Analysis, FDM 2333 Intro to Buying and Management, FDM 3221 Internship Prep, FDM Product Development II, FDM 3553 Fashion Retail Mathematics, FDM 4363 Draping, FDM 4424 Teaching Methods in Ag and HS, FDM 4513 Fashion Consumer Behavior, FDM 4603 Global Sourcing in the Textile and Apparel Industry, and FDM 4693 Fashion Retailing. We support the approval of the degree modification and the course modification and new course proposals. We believe these changes will strengthen the program and benefit students.

Sincerely,

Joe D. Wilmoth, Chair

Alisha Hardman, Member

Julie Parker, Member

Brandan Wheeler, Member

APPROVAL FORM FOR

DEGREE PROGRAMS

MISSISSIPPI STATE UNIVERSITY

NOTE: This form is a cover sheet that must accompany the degree program change proposal. The actual proposal should be prepared in accordance with format requirements provided in the *Guide and Format for Curriculum Proposals* published by the UCCC. Both cover sheet and proposal should be submitted, along with all required copies, to UCCC, Garner Hall, Room 279, Mail Stop 9702.

College: Agriculture & Life Sciences **Department:** School of Human Sciences

Contact Person: Tommy M. Phillips **Mail Stop:** 9745 **E-mail:** tom.phillips@msstate.edu

Nature of Change: Modification **Date:**

Program will be offered at: Starkville (Campus 1)

Current Degree Program Name: Bachelor of Science **Effective Date:** Fall 2018

Major: HDFS **Concentration:**

New Degree Program Name: Bachelor of Science

Major: HDFS **Concentration:**

Summary of Proposed Changes:

Reduce concentration hours from 62 to 59. Add HDFS 2813 (Child Development) to major core. This will increase the number of hours in the major core from 26 to 29.

Michael E. Newman	
Department Head	
	2.28.18
Chair, College or School Curriculum Committee	
	3/1/18
Dean of College or School	
Chair, University Committee on Courses and Curricula	
Chair, Graduate Council (if applicable)	
Chair, Deans Council	

☐ SACS Letter Sent

DEGREE MODIFICATION OUTLINE FORM

Use the chart below to make modifications to an existing undergraduate degree outline. If any General Education (Core) course is acceptable in the category, please indicate by saying "any Gen Ed course." There is no need to type in the whole list. All deleted courses and information should be shown in *italics* and all new courses and information in **bold**. Include the course prefix, number, and title in both columns. Expand this table as needed.

CURRENT Degree Description	PROPOSED Degree Description
Degree: Human Development and Family Science Major: Human Development and Family Science Concentration: *Child Development*	Degree: Human Development and Family Science Major: Human Development and Family Science Concentration:
This program offers an interdisciplinary lifespan approach to the study of children, youth, and families. It encompasses specialty areas in preschool teaching, childcare, youth development, family science, child life, and family and consumer sciences teacher education. Students develop an awareness of trends, issues and public policy affecting families and analyze factors that influence cognitive, emotional, social and physical development in the contexts of culture and family. Graduates enter diverse public and private sectors that focus on enabling children, youth, and families to function effectively in today's complex society. Specific course work is required to specialize in each area or meet Class A teacher licensure requirements for family and consumer sciences in the state of Mississippi. Specific course work is also required to specialize in child life, preschool education, youth development, or family science. A grade of "C" or better is required for all major courses (Human Development and Family Science courses).	This program offers an interdisciplinary lifespan approach to the study of children, youth, and families. It encompasses specialty areas in preschool teaching, childcare, youth development, family science, child life, and family and consumer sciences teacher education. Students develop an awareness of trends, issues and public policy affecting families and analyze factors that influence cognitive, emotional, social and physical development in the contexts of culture and family. Graduates enter diverse public and private sectors that focus on enabling children, youth, and families to function effectively in today's complex society. Specific course work is required to specialize in each area or meet Class A teacher licensure requirements for family and consumer sciences in the state of Mississippi. Specific course work is also required to specialize in child life, preschool education, youth development, or family science. A grade of "C" or better is required for all major courses (Human Development and Family Science courses).

CURRENT CURRICULUM OUTLINE	Required Hours	**PROPOSED CURRICULUM OUTLINE**	Required Hours
EN 1103 English Comp I En 1113 English Comp II	6	EN 1103 English Comp I EN 1113 English Comp II	6
Fine Arts (General Education):	3	Fine Arts (General Education):	3
Natural Sciences (2 labs required from Gen Ed) BIO 1004 Anatomy & Physiology (with lab) required for Child Life Concentration	9	Natural Sciences (2 labs required from Gen Ed) BIO 1004 Anatomy & Physiology (with lab) required for Child Life Concentration	9
Extra Science (if appropriate) HS 2293 Individual and Family Nutrition required for FCS Education Select from Gen Ed courses for Child Development, Child Life, Youth Development, and Family Science		Extra Science (if appropriate) HS 2293 Individual and Family Nutrition required for FCS Education Select from Gen Ed courses for Child Development, Child Life, Youth Development, and Family Science	
Math (General Education):	6	Math (General Education):	6
Humanities (General Education):	6	Humanities (General Education):	6

Social/Behavioral Sciences (Gen Ed): HDFS 1813 and EPY 3543 required for FCS Education	6	Social/Behavioral Sciences (Gen Ed): HDFS 1813 and EPY 3543 required for FCS Education	6
General Education Hours	36	General Education Hours	36
Major Core Courses HS 1701 Survey of Human Sciences HDFS 3303 Consumer Economics HDFS 4333 Families, Legislation, & Public Policy HDFS 4424 Teaching Methods in Ag & HS HS 4701 Internship Placement Seminar HS 4702 Human Sciences Senior Seminar HDFS 4803 Parenting HDFS 4853 The Family: An Ecological Perspective HDFS 4883 Risk, Resilience, & Preventive Interventions Writing Competency met by: AELC 3203 Intro to Tech Writing OR EDF 3413 Writing for Thinking OR EPY 3513 Writing for Behavioral Sciences OR MGT 3213 Organizational Communication		Major Core Courses HS 1701 Survey of Human Sciences **HDFS 2813 Child Development** HDFS 3303 Consumer Economics HDFS 4333 Families, Legislation, & Public Policy HDFS 4424 Teaching Methods in Ag & HS HS 4701 Internship Placement Seminar HS 4702 Human Sciences Senior Seminar HDFS 4803 Parenting HDFS 4853 The Family: An Ecological Perspective HDFS 4883 Risk, Resilience, & Preventive Interventions Writing Competency met by: AELC 3203 Intro to Tech Writing OR EDF 3413 Writing for Thinking OR EPY 3513 Writing for Behavioral Sciences OR MGT 3213 Organizational Communication	
Major Core Hours	*26*	Major Core Hours	**29**
		Concentration: Child Development	
The child development concentration explores the growth and development of children (conception until adolescence) within the family system and sociocultural milieu. This coursework prepares students to be become competent early care and education professionals, parent educators, child advocates, and early interventionists within the public, private, and non-profit sectors. Students learn real-world application through lab experiences at the Child Development and Family Studies Center and internships in settings that align with the students' career goals. PreK-K teaching candidates must complete a PreK-K Teacher Candidacy Internship under the supervision of a licensed teacher. To be eligible for PreK-K teaching licensure in Mississippi, students must pass the Praxis Core or have a cumulative ACT score of at		The child development concentration explores the growth and development of children (conception until adolescence) within the family system and sociocultural milieu. This coursework prepares students to be become competent early care and education professionals, parent educators, child advocates, and early interventionists within the public, private, and non-profit sectors. Students learn real-world application through lab experiences at the Child Development and Family Studies Center and internships in settings that align with the students' career goals. PreK-K teaching candidates must complete a PreK-K Teacher Candidacy Internship under the supervision of a licensed teacher. To be eligible for PreK-K teaching licensure in Mississippi, students must pass the Praxis Core or have a cumulative ACT score of at	

least 21; have a GPA of at least 2.75; and pass the Praxis II Early Childhood Principles of Teaching and Learning (5621) and the Praxis II Child Development (5024).		least 21; have a GPA of at least 2.75; and pass the Praxis II Early Childhood Principles of Teaching and Learning (5621) and the Praxis II Child Development (5024).	
Child Development Concentration HDFS 1813 Indiv & Family Dev through Lifespan HDFS 2803 Prenatal & Infant Development *HDFS 2813 Child Development* HDFS 3803 Creat & Play in Yng Child HDFS 3813 Lifespan Theory HDFS 3823 Methods & Materials ECEP HDFS 3843 Guiding Child Behavior HDFS 4760 Child Development Internship or HDFS 4740 PreK-K Teacher Candidacy Internship (12 hours) HDFS 4823 Dev & Admin of Child Ser Prog HS 2283 Child Health & Nutrition EDE 3233 Teaching Children's Literature EDX 3213 Psy & Ed of Exc Child & Youth CO 1003 Fundamentals of Public Speaking OR CO 1013 Introduction to Communication Computer Literacy (3 hours) satisfied by TKT 1273 Computer Applications OR BIS 1012 COE 4013 Facilitative Skills Dev <u>8 hours electives</u>		Child Development Concentration HDFS 1813 Indiv & Family Dev through Lifespan HDFS 2803 Prenatal & Infant Development HDFS 3803 Creat & Play in Yng Child HDFS 3813 Lifespan Theory HDFS 3823 Methods & Materials ECEP HDFS 3843 Guiding Child Behavior HDFS 4760 Child Development Internship or HDFS 4740 PreK-K Teacher Candidacy Internship (12 hours) HDFS 4823 Dev & Admin of Child Ser Prog HS 2283 Child Health & Nutrition EDE 3233 Teaching Children's Literature EDX 3213 Psy & Ed of Exc Child & Youth CO 1003 Fundamentals of Public Speaking OR CO 1013 Introduction to Communication Computer Literacy (3 hours) satisfied by TKT 1273 Computer Applications OR BIS 1012 COE 4013 Facilitative Skills Dev <u>8 hours electives</u>	
Concentration Hours	*62*	Concentration Hours	**59**
Total Hours	124	Total Hours	124

Degree: Human Development and Family Science *Major: Human Development and Family Science* Concentration: Child Life	**Concentration: Child Life**
A concentration in child life provides the student with an overview of the role of the child life specialist working with children and their families in a health care setting. The primary emphases of the child life concentration are on student demonstration of knowledge, skills, and abilities required to assume the responsibilities of a child life professional. This includes involvement in the assessment of clients;	A concentration in child life provides the student with an overview of the role of the child life specialist working with children and their families in a health care setting. The primary emphases of the child life concentration are on student demonstration of knowledge, skills, and abilities required to assume the responsibilities of a child life professional. This includes involvement in the assessment of clients; planning and delivering child life

planning and delivering child life services to patients including medical play, pre-procedural teaching, use of distractions, etc.; and evaluating the effectiveness of the interventions and plan.		services to patients including medical play, pre-procedural teaching, use of distractions, etc.; and evaluating the effectiveness of the interventions and plan.	
CURRENT CURRICULUM OUTLINE	Required Hours	**PROPOSED CURRICULUM OUTLINE**	Required Hours
Concentration Courses HDFS 1813 Indiv & Family Dev through Lifespan HDFS 2283 Child Health & Nutrition HDFS 2803 Prenatal & Infant Development *HDFS 2813 Child Development* HDFS 3803 Creat & Play in Yng Child HDFS 3813 Lifespan Theory HDFS 3823 Methods & Materials ECEP HDFS 3843 Guiding Child Behavior HDFS 4770 Child Life Internship OR HDFS 4760 Child Development Internship OR HDFS 4740 PreK-K Teacher Candidacy Internship (12 hours) HDFS 4823 Dev & Admin of Child Ser Prog HDFS 4832 Child Life Clinical HDFS 4833 The Hospitalized Child EDE 3233 Teaching Children's Literature EDX 3213 Psy & Ed of Exc Child & Youth COE 4013 Facilitative Skills Dev CO 1003 Fundamentals of Public Speaking OR CO 1013 Introduction to Communication Computer Literacy (3 hours) satisfied by TKT 1273 Computer Applications OR BIS 1012 Introduction to Business Computer Systems 3 hours electives		Concentration Courses HDFS 1813 Indiv & Family Dev through Lifespan HDFS 2283 Child Health & Nutrition HDFS 2803 Prenatal & Infant Development HDFS 3803 Creat & Play in Yng Child HDFS 3813 Lifespan Theory HDFS 3823 Methods & Materials ECEP HDFS 3843 Guiding Child Behavior HDFS 4770 Child Life Internship OR HDFS 4760 Child Development Internship OR HDFS 4740 PreK-K Teacher Candidacy Internship (12 hours) HDFS 4823 Dev & Admin of Child Ser Prog HDFS 4832 Child Life Clinical HDFS 4833 The Hospitalized Child EDE 3233 Teaching Children's Literature EDX 3213 Psy & Ed of Exc Child & Youth COE 4013 Facilitative Skills Dev CO 1003 Fundamentals of Public Speaking OR CO 1013 Introduction to Communication Computer Literacy (3 hours) satisfied by TKT 1273 Computer Applications OR BIS 1012 Introduction to Business Computer Systems 3 hours electives	
Concentration Hours	*62*	Concentration Hours	**59**
Total Hours	124	Total Hours	124

Degree: Human Development and Family Science *Major: Human Development and Family Science* Concentration: Youth Development	**Concentration: Youth Development**
The Youth Development curriculum prepares students to understand and work effectively with children and adolescents, ages 10-18, in a variety of settings. The program provides students with a comprehensive view	The Youth Development curriculum prepares students to understand and work effectively with children and adolescents, ages 10-18, in a variety of settings. The program provides students with a comprehensive view of

of the needs and developmental characteristics of youths, as well as the challenges facing today's youths. Emphasis is placed on understanding how youth development does not occur in isolation but is situated in, and affected by, contexts such as relationships, family, neighborhood/community, school, culture, the economy, and society. Youth Development students gain valuable real-world experience through a required field experience course and an internship. Students are also able to develop specific areas of specialization to fit their career interests by choosing from a generous variety of focus area courses.	the needs and developmental characteristics of youths, as well as the challenges facing today's youths. Emphasis is placed on understanding how youth development does not occur in isolation but is situated in, and affected by, contexts such as relationships, family, neighborhood/community, school, culture, the economy, and society. Youth Development students gain valuable real-world experience through a required field experience course and an internship. Students are also able to develop specific areas of specialization to fit their career interests by choosing from a generous variety of focus area courses.
Concentration Courses HDFS 1813 Indiv & Family Dev through Lifespan HDFS 3000 Field Experience (3 hours) HDFS 3813 Lifespan Theory HDFS 4780 Youth Development Internship (12 hours) HDFS 4873 Positive Youth Development PSY 4223 Drug Use and Abuse OR SW 4533 Substance Abuse and Addictions in Social Work Services CO 1003 Fundamentals of Public Speaking OR CO 1013 Introduction to Communication Computer Literacy (3 hours) satisfied by TKT 1273 Computer Applications OR BIS 1012 Choose three of the following (9 hours): AELC 4403 Development of Youth Programs PSY 3413 Human Sexual Behavior EDX 3213 Psy & Ed of Exc Child & Youth COE 4013 Facilitative Skills Dev EPY 3543 Psychology of Adolescence Choose *15* hours from the following: *HDFS 2813 Child Development* HDFS 3833 Human Dev. in the Context of Leisure & Rec. HDFS 3673 Environments for Special Needs EDX 4423 Teaching the Disadvantaged Child EPY 3503 Principles of Educational Psychology, EPY 3553 Giftedness/Creativity EPY 4053 Psych & Education of Ment Retarded	Concentration Courses HDFS 1813 Indiv & Family Dev through Lifespan HDFS 3000 Field Experience (3 hours) HDFS 3813 Lifespan Theory HDFS 4780 Youth Development Internship (12 hours) HDFS 4873 Positive Youth Development PSY 4223 Drug Use and Abuse OR SW 4533 Substance Abuse and Addictions in Social Work Services CO 1003 Fundamentals of Public Speaking OR CO 1013 Introduction to Communication Computer Literacy (3 hours) satisfied by TKT 1273 Computer Applications OR BIS 1012 Choose three of the following (9 hours): AELC 4403 Development of Youth Programs PSY 3413 Human Sexual Behavior EDX 3213 Psy & Ed of Exc Child & Youth COE 4013 Facilitative Skills Dev EPY 3543 Psychology of Adolescence Choose **12** hours from the following: HDFS 3833 Human Dev. in the Context of Leisure & Rec. HDFS 3673 Environments for Special Needs EDX 4423 Teaching the Disadvantaged Child EPY 3503 Principles of Educational Psychology, EPY 3553 Giftedness/Creativity EPY 4053 Psych & Education of Ment Retarded SO 4233 Juvenile Delinquency SO 3313 Deviant Behavior

SO 4233 Juvenile Delinquency SO 3313 Deviant Behavior SO 3503 Violence in the U.S. SO 3603 Criminology SO 4333 Sociology of Sport SO 3213 Intro to Social Research SO 2203 Cultural and Racial Minorities PE 3033 Basketball/Football Officiating PE 3133 Adaptive Physical Education PE 3183 Psychology of Sport & Exercise KI 2213 Emergency Healthcare PE 3422 Coaching Football PE 3432 Coaching Basketball PE 3452 Coaching Softball and Baseball PE 3433 General Safety Methods MGT 3213 Organizational Communications MGT 3114 Prin of Mgt & Prod MGT 3513 Intro to Human Res Mgt MGT 3813 Organizational Behavior MGT 4563 Staffing in Organizations MKT 3013 Principles in Marketing MKT 3213 Retailing MKT 4113 Personal Selling MKT 4123 Advertising 5 hours electives		SO 3503 Violence in the U.S. SO 3603 Criminology SO 4333 Sociology of Sport SO 3213 Intro to Social Research SO 2203 Cultural and Racial Minorities PE 3033 Basketball/Football Officiating PE 3133 Adaptive Physical Education PE 3183 Psychology of Sport & Exercise KI 2213 Emergency Healthcare PE 3422 Coaching Football PE 3432 Coaching Basketball PE 3452 Coaching Softball and Baseball PE 3433 General Safety Methods MGT 3213 Organizational Communications MGT 3114 Prin of Mgt & Prod MGT 3513 Intro to Human Res Mgt MGT 3813 Organizational Behavior MGT 4563 Staffing in Organizations MKT 3013 Principles in Marketing MKT 3213 Retailing MKT 4113 Personal Selling MKT 4123 Advertising 5 hours electives	
Concentration Hours	*62*	Concentration Hours	**59**
Total Hours	124	Total Hours	124

Degree: Human Development and Family Science *Major: Human Development and Family Science* Concentration: Family Science		**Concentration: Family Science**	
The Family Science program helps students discover, verify, and apply knowledge about the family. Family Science students gain valuable real-world experience through a required field experience course and an internship, and graduates are able to receive provisional certification through the National Council on Family Relations as Certified Family Life Educators, recognizing their competence in a broad range of ten family-related content areas. They are prepared to address societal issues including economics, education, work-family issues, parenting, sexuality, gender, substance abuse, domestic violence, unemployment, debt, and child abuse within the context of the family. Graduates can work in a variety of governmental, non-profit, religious, and private agencies.		The Family Science program helps students discover, verify, and apply knowledge about the family. Family Science students gain valuable real-world experience through a required field experience course and an internship, and graduates are able to receive provisional certification through the National Council on Family Relations as Certified Family Life Educators, recognizing their competence in a broad range of ten family-related content areas. They are prepared to address societal issues including economics, education, work-family issues, parenting, sexuality, gender, substance abuse, domestic violence, unemployment, debt, and child abuse within the context of the family. Graduates can work in a variety of governmental, non-profit, religious, and private agencies.	
Concentration Courses HDFS 1813 Indiv & Family Dev through Lifespan *HDFS 2813 Child Development*		Concentration Courses HDFS 1813 Indiv & Family Dev through Lifespan HDFS 3000 Field Experience (3 hours)	

HDFS 3000 Field Experience (3 hours) HDFS 3813 Lifespan Theory HDFS 4313 Family Resource Management HDFS 4403 Intro to Gerontology HDFS 4790 Family Science Internship (12 hours) HDFS 4813 Adult Development: The Middle Years HDFS 4843 Family Interaction HDFS 4873 Positive Youth Development HDFS 3673 Environments for Special Needs COE 4013 Facilitative Skills Dev PSY 3413 Human Sexual Behavior PSY 4223 Drug Use and Abuse OR SW 4533 Substance Abuse and Addictions in Social Work Services CO 1003 Fundamentals of Public Speaking OR CO 1013 Introduction to Communication Computer Literacy (3 hours) satisfied by TKT 1273 Computer Applications OR BIS 1012 5 hours electives		HDFS 3813 Lifespan Theory HDFS 4313 Family Resource Management HDFS 4403 Intro to Gerontology HDFS 4790 Family Science Internship (12 hours) HDFS 4813 Adult Development: The Middle Years HDFS 4843 Family Interaction HDFS 4873 Positive Youth Development HDFS 3673 Environments for Special Needs COE 4013 Facilitative Skills Dev PSY 3413 Human Sexual Behavior PSY 4223 Drug Use and Abuse OR SW 4533 Substance Abuse and Addictions in Social Work Services CO 1003 Fundamentals of Public Speaking OR CO 1013 Introduction to Communication Computer Literacy (3 hours) satisfied by TKT 1273 Computer Applications OR BIS 1012 5 hours electives	
Concentration Hours	*62*	Concentration Hours	**59**
Total Hours	124	Total Hours	124

Degree: Human Development and Family Science *Major: Human Development and Family Science* Concentration: Family and Consumer Sciences Teacher Education	**Concentration: Family and Consumer Sciences Teacher Education**
The Family and Consumer Sciences teacher education program at Mississippi State University is NCATE accredited. Students must conform to the policies on teacher education, as explained under "Teacher Licensure" elsewhere in this catalog. Following is a list of courses taught in selected Mississippi high schools and vo-tech centers: family dynamics, resource management, nutrition and wellness, family and individual health, personal development, and child development. Family and Consumer Sciences teachers can also teach in high school Occupational Programs (such as food production, childcare, and clothing production). Some additional on-the-job training is required to teach these courses. Completion of a Bachelor of Science in Human Development and Family Science (Family and Consumer Sciences Education emphasis) degree from the School of Human Sciences at Mississippi State University leads to	The Family and Consumer Sciences teacher education program at Mississippi State University is NCATE accredited. Students must conform to the policies on teacher education, as explained under "Teacher Licensure" elsewhere in this catalog. Following is a list of courses taught in selected Mississippi high schools and vo-tech centers: family dynamics, resource management, nutrition and wellness, family and individual health, personal development, and child development. Family and Consumer Sciences teachers can also teach in high school Occupational Programs (such as food production, childcare, and clothing production). Some additional on-the-job training is required to teach these courses. Completion of a Bachelor of Science in Human Development and Family Science (Family and Consumer Sciences Education emphasis) degree from the School of Human Sciences at Mississippi State University leads to licensure to teach these courses.

licensure to teach these courses.			
Concentration Courses EDF 3333 Social Foundations of Education EDF 4243 Planning for Diversity of Learners EDS 3411 Practicum in Secondary Ed EDS 4873 Seminar in Managing Secondary Class EDX 3213 Psych & Ed of Excep Child & Youth EPY 3143 Human Dev & Learning Strategies in Ed EPY 3253 Evaluating Learning FDM 1533 Apparel Design I HDFS 2803 Prenatal and Infant Development (new) *HDFS 2813 Child Development* HDFS 3000 Field Experience (1 hour) HDFS 4313 Family Resource Management HDFS 4462 Curriculum in Human Sciences HDFS 4886 Teaching Internship in Vocat. Human Sci. HDFS 4896 Teaching Internship in Vocat. Human Sci HS 2203 Science of Food Preparation HS 2283 Child Health and Nutrition HS 2603 Interior Design Fundamentals KI 1803 Health Trends and Topics PSY 3413 Human Sexual Behavior Computer Literacy (3 hours) Satisfied by successful completion of HS 3303 1 hour elective		Concentration Courses EDF 3333 Social Foundations of Education EDF 4243 Planning for Diversity of Learners EDS 3411 Practicum in Secondary Ed EDS 4873 Seminar in Managing Secondary Class EDX 3213 Psych & Ed of Excep Child & Youth EPY 3143 Human Dev & Learning Strategies in Ed EPY 3253 Evaluating Learning FDM 1533 Apparel Design I HDFS 2803 Prenatal and Infant Development (new) HDFS 3000 Field Experience (1 hour) HDFS 4313 Family Resource Management HDFS 4462 Curriculum in Human Sciences HDFS 4886 Teaching Internship in Vocat. Human Sci. HDFS 4896 Teaching Internship in Vocat. Human Sci HS 2203 Science of Food Preparation HS 2283 Child Health and Nutrition HS 2603 Interior Design Fundamentals KI 1803 Health Trends and Topics PSY 3413 Human Sexual Behavior Computer Literacy (3 hours) Satisfied by successful completion of HS 3303 1 hour elective	
Concentration Hours	*62*	Concentration Hours	**59**
Total Hours	124	Total Hours	124

3. JUSTIFICATION AND STUDENT LEARNING OUTCOMES
The Human Development and Family Science faculty believe that all students earning a degree in HDFS should take HDFS 2813 Child Development to be consistent with our life-span approach to human development.

4. SUPPORT
A letter of support from the School of Human Sciences is attached.

5. PROPOSED 4-LETTER ABBREVIATION
No change: HDFS

6. EFFECTIVE DATE
Fall 2018

MISSISSIPPI STATE UNIVERSITY

SCHOOL OF HUMAN SCIENCES
P. O. Box 9745
Mississippi State, MS 39762
P: 662.325.2950
humansci.msstate.edu

January 19, 2018

Ms. Jessica Graves
Chair, CALS Curriculum Committee
Box 9815
Mississippi State, MS 39762

Ms. Graves:

The School of Human Sciences Curriculum Committee has reviewed the proposal for modifications in Human Development and Family Science degree that adds HDFS 2813 to the Youth Development requirements. The committee supports its approval. Both the HDFS faculty and the curriculum committee agree that the change will strengthen both the Youth Development Concentration and the HDFS major.

Joe D. Wilmoth, Chair

Alisha Hardman, Member

Julie Parker, Member

Brandan Wheeler, Member

APPROVAL FORM FOR

DEGREE PROGRAMS

MISSISSIPPI STATE UNIVERSITY

NOTE: This form is a cover sheet that must accompany the degree program change proposal. The actual proposal should be prepared in accordance with format requirements provided in the *Guide and Format for Curriculum Proposals* published by the UCCC. Both cover sheet and proposal should be submitted to UCCC Mail Stop 9702 (281 Garner Hall), Phone: 325-9410.

College: Arts & Sciences **Department: Geosciences**

Contact Person: Andrew Mercer **Mail Stop: 9537** **E-mail: aem35@msstate.edu**
Nature of Change: Modification **Date Initiated: 11-3-17** **Effective Date: Fall 2018**

New or Current Degree Program Name: Bachelor of Science in Geosciences

Summary of Proposed Changes:

Several minor changes are being proposed to the curriculum for the Broadcast Meteorology Concentration, the Professional Meteorology Concentration, and the Professional Geology Concentration. Additionally, all concentrations require GR 1603 Introduction to Meteorology, which is being replaced with GR 1604 Weather and Climate (adding a laboratory component to the course). Finally, individual concentration descriptions (including those discussing job opportunities associated with each concentration) are going to be added to each concentration to give students more guidance on the concentrations. Individual concentration changes include:

For Professional Meteorology and Broadcast Meteorology concentrations:

- **Remove GR 4402 and GR 4412 Weather Analysis I and II and GR 4613 Applied Climatology and replace those hours with the option to choose 4 meteorology courses from a large list, allowing students to tailor their own degrees to their interests.**
- **Adding GR 4643 Physical Climatology as a required course for both concentrations.**
- **Removing classes that are no longer needed as part of the Broadcast Concentration, specifically removing GR 4933 Dynamic Meteorology II, GG 3603 Water Resources, and GR 4813 Natural Hazards as requirements. Students will still be able to take these as part of the choose 4 meteorology courses listed above.**
- **Replacing GR 4753 Satellite and Radar Meteorology with an option to choose either GR 4883 Radar Meteorology or GR 4783 Satellite Meteorology (the other of which can be taken as part of the "choose 4" discussed above.**

For Professional Geology concentrations:

- GG 4633 Introduction to Geochemistry has been added as an option to replace PH 1133 General Physics III or GG 4233 Applied Geophysics
- The summer field camp requirement has been officially added as an on-campus offering (GR 4446 Summer Geology Field Camp)
- Emphasis areas in Environmental, Petroleum, and Geospatial have been added for students to choose from when finalizing their remaining electives.

Approved:	Date:
John C. Rodgers III Department Head	11/3/17
Brandi Carr O'Neill Chair, College or School Curriculum Committee	2/27/2018
Nicole Rader Dean of College or School	2/28/18
Chair, University Committee on Courses and Curricula	
Chair, Graduate Council(if applicable)	
Chair, Deans Council	

Degree Program Modification – Geosciences

Summary of Proposed Changes:

Several minor changes are being proposed to the curriculum for the Broadcast Meteorology Concentration, the Professional Meteorology Concentration, and the Professional Geology Concentration within the Department of Geosciences (as outlined below). Additionally, all concentrations require GR 1603 Introduction to Meteorology, which is being replaced with GR 1604 Weather and Climate (adding a laboratory component to the course). Finally, individual concentration descriptions (including those discussing job opportunities associated with each concentration) are going to be added to each concentration to give students more guidance on the concentrations. Individual concentration changes include:

For Professional Meteorology and Broadcast Meteorology concentrations:

- Remove GR 4402 and GR 4412 Weather Analysis I and II and GR 4613 Applied Climatology and replace those hours with the option to choose 4 meteorology courses from a large list, allowing students to tailor their own degrees to their interests.
- Adding GR 4643 Physical Climatology as a required course for both concentrations.
- Removing classes that are no longer needed as part of the Broadcast Concentration, specifically removing GR 4933 Dynamic Meteorology II, GG 3603 Water Resources, and GR 4813 Natural Hazards as requirements. Students will still be able to take these as part of the choose 4 meteorology courses listed above.
- Replacing GR 4753 Satellite and Radar Meteorology with an option to choose either GR 4883 Radar Meteorology or GR 4783 Satellite Meteorology (the other of which can be taken as part of the "choose 4" discussed above.

For Professional Geology concentrations:

- GG 4633 Introduction to Geochemistry has been added as an option to replace PH 1133 General Physics III or GG 4233 Applied Geophysics
- The summer field camp requirement has been officially added as an on-campus offering (GR 4446 Summer Geology Field Camp)
- Emphasis areas in Environmental, Petroleum, and Geospatial have been added for students to choose from when finalizing their remaining electives.
- GR 4303 Principles of GIS is now a required course for all Professional Geology majors.

1. Degree Description

CURRENT Degree Description	PROPOSED Degree Description
Degree: Bachelor of Science Major: Geoscience Concentration: Professional Geology, Geography, Environmental Geoscience, Broadcast Meteorology/Climatology, Professional Meteorology/Climatology, Geographic Information Systems	Degree: Bachelor of Science Major: Geoscience Concentration: Professional Geology, Geography, Environmental Geoscience, Broadcast Meteorology/Climatology, Professional Meteorology/Climatology, Geographic Information Systems
CATALOG DESCRIPTION Interim Department Head: Dr. John Rodgers Office: 108 Hilbun Undergraduate Coordinator: Dr. Andrew Mercer Academic Coordinator: Tina Davis B.S. and M.S. degrees in Geoscience and a PhD in Earth and Atmospheric Sciences are offered with emphasis in sub-disciplines described below. Minors are offered at both B.S. and M.S. levels in Geoscience. The Department of Geosciences strives for an integrated, interdisciplinary study of the whole Earth from the bachelor's through the Ph.D. levels. Course offerings are grouped into six areas of emphasis: 1. Professional Geology - physical, biological, and chemical aspects of the Earth; 2. Geography - distribution of physical features and human interaction with the Earth; 3. Environmental Geoscience - conservation and management of Earth resources and remediation of natural and human hazards; 4. Broadcast Meteorology/Climatology - radio/television weathercasting; 5. Professional Meteorology/Climatology -	CATALOG DESCRIPTION Interim Department Head: Dr. John Rodgers Office: 108 Hilbun Undergraduate Coordinator: Dr. Andrew Mercer Academic Coordinator: Tina Davis B.S. and M.S. degrees in Geoscience and a PhD in Earth and Atmospheric Sciences are offered with emphasis in sub-disciplines described below. Minors are offered at both B.S. and M.S. levels in Geoscience. The Department of Geosciences strives for an integrated, interdisciplinary study of the whole Earth from the bachelor's through the Ph.D. levels. Course offerings are grouped into six areas of emphasis: 1. Professional Geology - physical, biological, and chemical aspects of the Earth; 2. Geography - distribution of physical features and human interaction with the Earth; 3. Environmental Geoscience - conservation and management of Earth resources and remediation of natural and human hazards; 4. Broadcast Meteorology/Climatology - radio/television weathercasting; 5. Professional Meteorology/Climatology -

atmospheric processes and climatic variability; and 6. Geographic Information Systems - spatial analysis and topological relationships of geographic data. *The Geoscience curriculum provides fundamental training for future employment in the petroleum and environmental industries; education; state and federal government agencies; environmental consulting; meteorological/climatological consulting; weathercasting on radio and television; and advanced studies in graduate school.* Within the six areas of emphasis outlined above, a student may further focus interests in a variety of areas including: water resources, hydrogeology and environmental clean-up and monitoring, petroleum exploration and services, construction and urbanization involving geological applications, geophysics and geochemistry, sedimentary geology and paleontology, Quaternary geology and karst processes, Geographic Information Systems, or analysis and prediction of weather and climate. A minimum of 40 credit hours in geoscience courses is required for the geoscience degree. A grade of C or higher is required on all departmental courses to satisfy graduation requirements. Students in the professional geology concentration are required to take the Association of State Board of Geologists Fundamentals of Geology (ASBOG-FG) exam. A minor in geoscience consists of a minimum of 14 credit hours in courses numbered 2000 and above, in addition to the first year courses. The following are examples of variations within a geoscience minor. A minor	atmospheric processes and climatic variability; and 6. Geographic Information Systems - spatial analysis and topological relationships of geographic data. Within the six areas of emphasis outlined above, a student may further focus interests in a variety of areas including: water resources, hydrogeology and environmental clean-up and monitoring, petroleum exploration and services, construction and urbanization involving geological applications, geophysics and geochemistry, sedimentary geology and paleontology, Quaternary geology and karst processes, Geographic Information Systems, **human or physical geography,** or analysis and prediction of weather and climate. A minimum of 40 credit hours in geoscience courses is required for the geoscience degree. A grade of C or higher is required on all departmental courses to satisfy graduation requirements. Students in the professional geology concentration are required to take the Association of State Board of Geologists Fundamentals of Geology (ASBOG-FG) exam. A minor in geoscience consists of a minimum of 14 credit hours in courses numbered 2000 and above, in addition to the first year courses. The following are examples of variations within a geoscience minor. A minor with a Geology emphasis should include physical (GG 1113/GG 1111) and historical geology (GG 1123/GG 1121) plus 14 hours 2000 and above for a total of 22 hours; for an Environmental Geoscience emphasis, physical and historical geology with laboratory plus introduction to environmental geology (GG 3133) and other course work 2000 and above for a total of 22

with a Geology emphasis should include physical (GG 1113/GG 1111) and historical geology (GG 1123/GG 1121) plus 14 hours 2000 and above for a total of 22 hours; for an Environmental Geoscience emphasis, physical and historical geology with laboratory plus introduction to environmental geology (GG 3133) and other course work 2000 and above for a total of 22 hours; for emphasis in Geography, cultural geography (GR 2013), world geography (GR 1123) and other course work 2000 and above; and Broadcast Meteorology/climatology, physical geography (GR 1114) and either introduction to environmental geology (GG 3133) or conservation of natural resources (GR 3113) and other course work 2000 and above for a total of 21 hours. Minors in Geoscience are also available at the M.S. level. Three educational enhancement awards and seven scholarships are available to students majoring in Geoscience, namely the F.F. Mellen, Forrest W. Pace, and Summer Geology Educational Enhancement awards, and the George W. Bishop, the Paul H. Dunn Memorial, the Ronald Greeley Memorial, the Gordon W. Gulmon, the Sistrunk Endowed, the Mark Worthey Endowed, and the Geosciences Endowed Scholarships. The three Educational Enhancement Awards provide financial assistance to those enrolled in field geology camp during the summer. The seven scholarships are awarded to students for academic excellence. All are restricted to students at junior or senior rank, with the exception of the Sistrunk Endowed and the Worthey Endowed Scholarships, and the Greeley Memorial and Geosciences Endowed Scholarships, which are for graduate students.	hours; for emphasis in Geography, cultural geography (GR 2013), world geography (GR 1123) and other course work 2000 and above; and Broadcast Meteorology/climatology, physical geography (GR 1114) and either introduction to environmental geology (GG 3133) or conservation of natural resources (GR 3113) and other course work 2000 and above for a total of 21 hours. Minors in Geoscience are also available at the M.S. level. Three educational enhancement awards and seven scholarships are available to students majoring in Geoscience, namely the F.F. Mellen, Forrest W. Pace, and Summer Geology Educational Enhancement awards, and the George W. Bishop, the Paul H. Dunn Memorial, the Ronald Greeley Memorial, the Gordon W. Gulmon, the Sistrunk Endowed, the Mark Worthey Endowed, and the Geosciences Endowed Scholarships. The three Educational Enhancement Awards provide financial assistance to those enrolled in field geology camp during the summer. The seven scholarships are awarded to students for academic excellence. All are restricted to students at junior or senior rank, with the exception of the Sistrunk Endowed and the Worthey Endowed Scholarships, and the Greeley Memorial and Geosciences Endowed Scholarships, which are for graduate students. The Department of Geosciences encourages involvement in Sigma Gamma Epsilon, a nationally recognized honorary Earth Science society and Gamma Theta Upsilon, international honor society in geography. Requirements for acceptance in Sigma Gamma Upsilon include a grade-point average of at least 3.00 in 12 or more hours of geoscience and a cumulative average of 2.67. Requirements for Gamma Theta

The Department of Geosciences encourages involvement in Sigma Gamma Epsilon, a nationally recognized honorary Earth Science society and Gamma Theta Upsilon, international honor society in geography. Requirements for acceptance in Sigma Gamma Upsilon include a grade-point average of at least 3.00 in 12 or more hours of geoscience and a cumulative average of 2.67. Requirements for Gamma Theta Upsilon are a grade-point average of at least 3.3 overall as well as in at least 9 hours of "GR" courses.

The Department of Geosciences participates with the National Weather Association (NWA) and the American Meteorological Society (AMS) in training individuals for the respective "Weathercaster Seals of Approval". The Office of the State Climatologist and the MSU Climatology Laboratory are housed in the Department and are strongly involved in programs for all students with interests in professional and broadcast meteorology and climatology.

Distance Learning Programs

The Department of Geosciences offers three distance learning programs listed below that can lead to a degree in Geosciences. Each program utilizes recorded lectures and the Internet for course instruction.

Broadcast and Operational Meteorology Program. A three-year, 17 course, 52 credit hour program of study that can lead to a B.S. degree in Geosciences. Primarily for individuals in television weather.

Teachers In Geoscience Program. A two-year, 12 course, 36 credit hour program of study that leads to a M.S. degree in Geosciences. Primarily for K-12 teachers. An additional

Upsilon are a grade-point average of at least 3.3 overall as well as in at least 9 hours of "GR" courses.

The Department of Geosciences participates with the National Weather Association (NWA) and the American Meteorological Society (AMS) in training individuals for the respective "Weathercaster Seals of Approval". The Office of the State Climatologist and the MSU Climatology Laboratory are housed in the Department and are strongly involved in programs for all students with interests in professional and broadcast meteorology and climatology.

Distance Learning Programs

The Department of Geosciences offers three distance learning programs listed below that can lead to a degree in Geosciences. Each program utilizes recorded lectures and the Internet for course instruction.

Broadcast and Operational Meteorology Program. A three-year, 17 course, 52 credit hour program of study that can lead to a B.S. degree in Geosciences. Primarily for individuals in television weather.

Teachers In Geoscience Program. A two-year, 12 course, 36 credit hour program of study that leads to a M.S. degree in Geosciences. Primarily for K-12 teachers. An additional two-year, 10 course, 30 credit hour program of advance course work is available.

Applied Meteorology Program. A two-year, 12 course 36 credit hour program of study that leads to a M.S. degree in Geosciences. Primarily for individuals with meteorological, environmental, or hazards-related careers.

two-year, 10 course, 30 credit hour program of advance course work is available. Applied Meteorology Program. A two-year, 12 course 36 credit hour program of study that leads to a M.S. degree in Geosciences. Primarily for individuals with meteorological, environmental, or hazards-related careers. Environmental Geoscience Program. A 30-credit hour, non-thesis program that leads to a M.S. degree in Geosciences. It is designed for students interested in graduate study of a broad cross-section of the geosciences and is offered both on-campus and through distance education.	Environmental Geoscience Program. A 30-credit hour, non-thesis program that leads to a M.S. degree in Geosciences. It is designed for students interested in graduate study of a broad cross-section of the geosciences and is offered both on-campus and through distance education.

2. Curriculum Outline

CURRENT CURRICULUM OUTLINE	Required Hours	PROPOSED CURRICULUM OUTLINE	Required Hours
Degree: Bachelor of Science Major: Geosciences		Degree: Bachelor of Science Major: Geosciences	
General Education and College Requirements		General Education and College Requirements	
English Composition EN 1103 English Comp I or EN 1163 Accelerated Comp I EN 1113 English Comp II or EN 1173 Accelerated Comp II	 3 3	English Composition EN 1103 English Comp I or EN 1163 Accelerated Comp I EN 1113 English Comp II or EN 1173 Accelerated Comp II	 3 3
Foreign Language Two semesters – one foreign language (see advisor)	6	Foreign Language Two semesters – one foreign language (see advisor)	6
Humanities Literature – see General Education Courses History – see General Education Courses	 3 3	Humanities Literature – see General Education Courses History – see General Education Courses	 3 3
Mathematics Specified under concentration areas	6	Mathematics Specified under concentration areas	6
Fine Arts CO 1503 Introduction to Theater (for Broadcast Meteorology) See A&S Core requirements (for other concentrations)	 3	Fine Arts CO 1503 Introduction to Theater (for Broadcast Meteorology) See A&S Core requirements (for other concentrations)	 3
Natural Sciences Specified under concentration areas	9-12	Natural Sciences Specified under concentration areas	9-12
Social Sciences GR 1123 Introduction to World Geography CO 1403 Introduction to the Mass Media (for Broadcast Meteorology) See Gen. Ed./A&S Core (other concentrations)	 3 3	Social Sciences GR 1123 Introduction to World Geography CO 1403 Introduction to the Mass Media (for Broadcast Meteorology) **Or** See Gen. Ed./A&S Core (other concentrations)	 3 3
Major Core Basic Courses GR 1114 Elements of Physical Geography or	4	Major Core Basic Courses GR 1114 Elements of Physical Geography or	4

GG 1113 Survey of Earth Sciences I and GG 1111 Survey of Earth Sciences I Laboratory CO 1003 Public Speaking Oral Communication Requirement CO 1003 Fundamentals of Public Speaking	3	GG 1113 Survey of Earth Sciences I and GG 1111 Survey of Earth Sciences I Laboratory CO 1003 Public Speaking Oral Communication Requirement CO 1003 Fundamentals of Public Speaking	3
Choose one of the following Concentrations:		Choose one of the following Concentrations:	

Professional Geology Concentration (GEOL)		Professional Geology Concentration (GEOL)	
CONCENTRATION DESCRIPTION		CONCENTRATION DESCRIPTION **The Professional Geology Concentration is designed to prepare students for entry-level employment in the environmental consulting industry; state and federal government agencies; as well as energy and extraction industries, such as oil, gas, and coal. The Professional Geology Degree also prepares students for application to a graduate program.**	
CURRENT CURRICULUM OUTLINE	Required Hours	**PROPOSED CURRICULUM OUTLINE**	Required Hours
Mathematics MA 1713 Calculus I MA 1723 Calculus II	 3 3	Mathematics MA 1713 Calculus I MA 1723 Calculus II	 3 3
Natural Sciences CH 1213 Chemistry I CH 1211 Investigations in Chemistry I CH 1223 Chemistry II CH 1221 Investigations in Chemistry II PH 1113 General Physics I PH 1123 General Physics II PH 1133 General Physics III or GG 4233 Applied Geophysics	 3 1 3 1 3 3 3	Natural Sciences CH 1213 Chemistry I CH 1211 Investigations in Chemistry I CH 1223 Chemistry II CH 1221 Investigations in Chemistry II PH 1113 General Physics I PH 1123 General Physics II PH 1133 General Physics III or GG 4233 Applied Geophysics	 3 1 3 1 3 3 3

		or GG 4633 Introduction to Geochemistry	
Concentration Requirements		Concentration Requirements	
GG 1121 Earth Sciences II Lab	1	GG 1121 Earth Sciences II Lab	1
GG 1123 Survey of Earth Sciences II	3	GG 1123 Survey of Earth Sciences II	3
GG 3133 Introduction to Environmental Geology	3	GG 3133 Introduction to Environmental Geology	3
GG 3613 Water Resources[1]	3	GG 3613 Water Resources[1]	3
GG 4114 Mineralogy	4	GG 4114 Mineralogy	4
GG 4123 Petrology	3	GG 4123 Petrology	3
GG 4201 Practicum on Paleontology	1	GG 4201 Practicum in Paleontology	1
GG 4304 Principles of Sedimentary Deposits I	4	GG 4304 Principles of Sedimentary Deposits I	4
GG 4413 Structural Geology	3	GG 4413 Structural Geology	3
GG 4333 Geowriting[2]	3	GG 4333 Geowriting[2]	3
GG 4443 Principles of Sedimentary Deposits II	3	GG 4443 Principles of Sedimentary Deposits II	3
GG 4503 Geomorphology	3	GG 4503 Geomorphology	3
		GR 4303 Principles of GIS	**3**
GR 2313 Maps and Remote Sensing	3	GR 2313 Maps and Remote Sensing	3
GR 4633 Statistical Climatology or ST 2113 Introduction to Statistics or ST 3123 Introduction to Statistical Inference	3	GR 4633 Statistical Climatology or ST 2113 Introduction to Statistics or ST 3123 Introduction to Statistical Inference	3
Summer Field Camp[3]	*6*	**GG 4446 Summer Geology Field Camp**	**6**
Choose one of the following: GG 4203 Principles of Paleobiology GG 4113 Micropaleontology GG 4133 Principles of Paleoecology	3	Choose one of the following: GG 4203 Principles of Paleobiology GG 4113 Micropaleontology GG 4133 Principles of Paleoecology	3
Choose two of the following: GG 1133 Planetary Geology GG 3603 Introduction to Oceanography GG 4523 Coastal Environments *GR 1603 Introduction to Meteorology*	6	Choose two of the following: GG 1133 Planetary Geology GG 3603 Introduction to Oceanography GG 4523 Coastal Environments **GR 1604 Weather and Climate**	6

Choose three *of the following:* *GG 4063 Development of Fossil Fuel Resources* *GG 4153 Engineering Geology* *GG 4433 Subsurface Methods* *GG 4613 Physical Hydrogeology* *GR 4303 Principles of GIS*	9	Choose three **additional courses from the following lists:**	9
Free electives	*3*	**Environmental Professional Emphasis** **GG 4613 Physical Hydrogeology** **GG 4633 Introduction to Geochemistry** **GG 4153 Engineering Geology** **Petroleum Professional Emphasis** **GG 4233 Applied Geophysics** **GG 4433 Subsurface Methods** **GG 4063 Earth and Atmospheric Energy Resources** **Geospatial Professional Emphasis** **GR 4313 Advanced GIS** **GR 4333 Remote Sensing of the Physical Environment** **GR 4343 Advanced Remote Sensing** **GR 4363 Geographic Information Systems Programming** **General Electives (9) hours Consult Advisor**	**9**
Total Hours	124	Total Hours	124
[1] Fulfills Computer Literacy Requirement [2] Fulfills Computer Literacy Requirement and Writing Requirement [3] *From an approved university. See advisor.*		[1] Fulfills Computer Literacy Requirement [2] Fulfills Computer Literacy Requirement and Writing Requirement	

Environmental Geoscience Concentration (ENGS)		Environmental Geoscience Concentration (ENGS)	
		CONCENTRATION DESCRIPTION **The environmental geosciences concentration is designed to be a flexible degree that provides a broad cross-section of the geosciences with emphasis on environmental stewardship. The degree can be molded with the assistance of an academic adviser to suit individual goals of students that do not readily align with other geosciences curricula. The degree prepares students to work as a geoscientist or prepares students for graduate school in the geosciences or other related fields.**	
CURRENT CURRICULUM OUTLINE	Required Hours	**PROPOSED CURRICULUM OUTLINE**	Required Hours
Mathematics MA 1313 College Algebra MA 1323 Trigonometry	 3 3	Mathematics MA 1313 College Algebra MA 1323 Trigonometry	 3 3
Natural Sciences Science with lab (CH, PH, BIO) Science without lab (CH, PH, BIO)	 6-8 3	Natural Sciences Science with lab (CH, PH, BIO) Science without lab (CH, PH, BIO)	 6-8 3
Concentration Requirements GG 3603 Introduction to Oceanography GG 3613 Water Resources[1] GG 4333 Geowriting[2] *GR 1603 Introduction to Meteorology* GR 4633 Statistical Climatology[1] or ST 2113 Introduction to Statistics or ST 3123 Introduction to Statistical Inference 4000 level departmental courses Choose one of the following: GG 1133 Planetary Geology GG 3133 Introduction to Environmental Geology GG 4523 Coastal Environments GR 2313 Maps and Remote Sensing	 3 3 3 *3* 3 18 3	Concentration Requirements GG 3603 Introduction to Oceanography GG 3613 Water Resources[1] GG 4333 Geowriting[2] **GR 1604 Weather and Climate** GR 4633 Statistical Climatology[1] or ST 2113 Introduction to Statistics or ST 3123 Introduction to Statistical Inference 4000 level departmental courses Choose one of the following: GG 1133 Planetary Geology GG 3133 Introduction to Environmental Geology GG 4523 Coastal Environments GR 2313 Maps and Remote Sensing	 3 3 3 **4** 3 18 3

GR 3113 Conservation of Natural Resources GR 4813 Natural Hazards and Processes General Electives	 *39*	GR 3113 Conservation of Natural Resources GR 4813 Natural Hazards and Processes General Electives	 **36-38**
Total Hours	124	Total Hours	124
[1] Fulfills Computer Literacy Requirement [2] Fulfills Writing Requirement		[1] Fulfills Computer Literacy Requirement [2] Fulfills Writing Requirement	

Geography Concentration (GPHY)		Geography Concentration (GPHY)	
		CONCENTRATION DESCRIPTION **This program prepares students to work in a variety of fields across the social and natural sciences. A geography degree can provide the multidisciplinary foundation necessary for careers in government, environmental management, education, planning, and development. People with geography degrees have found employment with: the US Census Bureau, National Parks Service, the National Forest Service and other federal government agencies, non-profit organizations focusing on community and international development, the environmental assessment industry, the GIS/geospatial industry, environmental and historical interpretation, and urban and regional planning. Our students also receive a strong foundation for further graduate studies in geography and related disciplines.**	
CURRENT CURRICULUM OUTLINE	Required Hours	**PROPOSED CURRICULUM OUTLINE**	Required Hours
Mathematics MA 1313 College Algebra MA 1323 Trigonometry	 3 3	Mathematics MA 1713 Calculus I MA 1723 Calculus II	 3 3
Natural Sciences Science with lab (CH, PH, BIO) Science without lab (CH, PH, BIO)	 6-9 3	Natural Sciences Science with lab (CH, PH, BIO) Science without lab (CH, PH, BIO)	 6-9 3
Concentration Requirements GG 4333 Geowriting[1] *GR 1603 Introduction to Meteorology* GR 2013 Cultural Geography GR 2313 Maps and Remote Sensing GR 4203 Geography of North America GR 4303 Principles of GIS or ST 2113 Introduction to Statistics or ST 3123 Introduction to Statistical Inference	 3 *3* 3 3 3 3	Concentration Requirements GG 4333 Geowriting[1] **GR 1604 Weather and Climate** GR 2013 Cultural Geography GR 2313 Maps and Remote Sensing GR 4203 Geography of North America GR 4303 Principles of GIS or ST 2113 Introduction to Statistics or ST 3123 Introduction to Statistical Inference	 3 **4** 3 3 3 3

GR 4283 Geography of the Islamic World	3	GR 4283 Geography of the Islamic World	3
4000 level departmental courses	12	4000 level departmental courses	12
Choose four of the following: GG 3133 Introduction to Environmental Geology GG 3603 Introduction to Oceanography GG 3613 Water Resources GG 4523 Coastal Environments GR 3113 Conservation of Natural Resources GR 4813 Natural Hazards and Processes	12	Choose four of the following: GG 3133 Introduction to Environmental Geology GG 3603 Introduction to Oceanography GG 3613 Water Resources[2] GG 4523 Coastal Environments GR 3113 Conservation of Natural Resources GR 4813 Natural Hazards and Processes	12
Choose four of the following: GR 4213 Geography of Latin America GR 4223 Geography of Europe GR 4233 Geography of Asia GR 4243 Geography of Russia and the Former Soviet Republics GR 4253 Geography of Africa GR 4263 Geography of the South GR 4123 Urban Geography	12	Choose four of the following: GR 4213 Geography of Latin America GR 4223 Geography of Europe GR 4233 Geography of Asia GR 4243 Geography of Russia and the Former Soviet Republics GR 4253 Geography of Africa GR 4263 Geography of the South GR 4123 Urban Geography	12
General Electives Consult Advisor	*15-18*	General Electives Consult Advisor	**14-17**
Total Hours	124	Total Hours	124
[1] Fulfills Computer Literacy Requirement and Writing Requirement [2] Fulfills Computer Literacy Requirement		[1] Fulfills Computer Literacy Requirement and Writing Requirement [2] Fulfills Computer Literacy Requirement	

Broadcast Meteorology Concentration (BMP)		Broadcast Meteorology Concentration (BMP)	
		CONCENTRATION DESCRIPTION **This program focuses on preparing students for a career in radio/television weathercasting. The coursework does not meet the requirements for the American Meteorological Society's Certified Broadcast Meteorologist Seal of Approval because it lacks some of the math and physics requirements. Individuals can, however, be qualified to earn the National Weather Association Seal of Approval after working in the industry for three years.**	
CURRENT CURRICULUM OUTLINE	Required Hours	**PROPOSED CURRICULUM OUTLINE**	Required Hours
Mathematics		Mathematics	
MA 1713 Calculus I	3	MA 1713 Calculus I	3
MA 1723 Calculus II	3	MA 1723 Calculus II	3
Natural Sciences		Natural Sciences	
CH 1043 Survey of Chemistry I	3	CH 1043 Survey of Chemistry I	3
PH 1113 General Physics I (w/ lab)	3	PH 1113 General Physics I (w/ lab)	3
PH 1123 General Physics II (w/ lab)	3	PH 1123 General Physics II (w/ lab)	3
Concentration Courses:		Concentration Courses:	
1603 Intro to Meteorology	*3*	**GR 1604 Weather and Climate**	**4**
GR 4402 Weather Analysis I	2		
GR 4412 Weather Analysis II	2		
GR 4422 Weather Forecasting I	2	GR 4422 Weather Forecasting I	2
GR 4432 Weather Forecasting II	2	GR 4432 Weather Forecasting II	2
GR 4613 Applied Climatology	3		
GR 4623 Physical Meteorology	3	GR 4623 Physical Meteorology	3
GR 4633 Statistical Climatology[1]	3	GR 4633 Statistical Climatology[1]	3
or		or	
ST 3123 Introduction to Statistical Inference		ST 3123 Introduction to Statistical Inference	
		GR 4643 Physical Climatology	**3**
GR 4733 Synoptic Meteorology	3	GR 4733 Synoptic Meteorology	3
		GR 4783 Satellite Meteorology	**3**
		or	
		GR 4883 Radar Meteorology	
GR 4753 Satellite and Radar Meteorology	3		
GR 4813 Natural Hazards and Processes	3		
GR 4823 Dynamic Meteorology I	3	GR 4823 Dynamic Meteorology I	3

GR 4933 Dynamic Meteorology II	*3*		
GR 4963 Mesoscale Meteorology	3	GR 4963 Mesoscale Meteorology	3
GR 4502 Practicum in Broadcast Meteorology I	2	GR 4502 Practicum in Broadcast Meteorology I	2
GR 4512 Practicum in Broadcast Meteorology II	2	GR 4512 Practicum in Broadcast Meteorology II	2
GR 4522 Practicum in Broadcast Meteorology III	2	GR 4522 Practicum in Broadcast Meteorology III	2
GR 4532 Practicum in Broadcast Meteorology IV	2	GR 4532 Practicum in Broadcast Meteorology IV	2
CO 2013 Voice and Articulation	3	CO 2013 Voice and Articulation	3
CO 3313 News Writing for the Electronic Media[2]	3	CO 3313 News Writing for the Electronic Media[2]	3
CO 2333 Television Production	3	CO 2333 Television Production	3
CO 3333 Advanced Television Production	3	CO 3333 Advanced Television Production	3
Departmental Elective 3000- or 4000-level	3		
Choose two of the following: *GG 1133 Planetary Geology* *GG 3133 Introduction to Environmental Geology*	6	**Choose four of the following:**	12
GG 3603 Introduction to Oceanography		GG 3603 Introduction to Oceanography	
GG 3613 Water Resources		GG 3613 Water Resources	
GG 4523 Coastal Environments		GG 4523 Coastal Environments	
GR 3113 Conservation of Natural Resources		GR 3113 Conservation of Natural Resources	
		GR 4303 Principles of GIS	
GR 4203 Geography of North America		GR 4203 Geography of North America	
		GR 4553 Computer Methods in Meteorology	
		GR 4613 Applied Climatology	
		GR 4813 Natural Hazards and Processes	
		GR 4783 Satellite Meteorology or	
		GR 4883 Radar Meteorology (if not taken as Concentration Course)	
		GR 4943 Tropical Meteorology	
		GR 4933 Dynamic Meteorology II	

General Electives Consult advisor	*8*	General Electives Consult advisor	**14**
Total Hours	124	Total Hours	124
[1] Fulfills Computer Literacy Requirement [2] Fulfills Writing Requirement		[1] Fulfills Computer Literacy Requirement [2] Fulfills Writing Requirement	

Professional Meteorology Concentration (PMET)		Professional Meteorology Concentration (PMET)	
		CONCENTRATION DESCRIPTION **This program focuses on the study of atmospheric processes and climatic variability. Upon completion of the program (operational emphasis), students will have met the coursework requirements for the National Weather Service, the private meteorology sector, or continue their education in graduate school. Students choosing the program with the broadcast emphasis can also work for the National Weather Service and also earn the American Meteorological Society's Certified Broadcast Meteorologist Seal of Approval.**	
CURRENT CURRICULUM OUTLINE	Required Hours	**PROPOSED CURRICULUM OUTLINE**	Required Hours
Mathematics		Mathematics	
MA 1713 Calculus I	3	MA 1713 Calculus I	3
MA 1723 Calculus II	3	MA 1723 Calculus II	3
MA 2733 Calculus III	3	MA 2733 Calculus III	3
MA 3253 Differential Equations I	3	MA 3253 Differential Equations I	3
Natural Sciences		Natural Sciences	
CH 1213 Chemistry I	3	CH 1213 Chemistry I	3
CH 1211 Investigations in Chemistry I	1	CH 1211 Investigations in Chemistry I	1
PH 1113 Physics I	3	PH 1113 Physics I	3
PH 1123 Physics II (w/lab)	3	PH 1123 Physics II (w/lab)	3
Concentration Requirements		Concentration Courses:	
GG 4333 Geowriting[2]	3	GG 4333 Geowriting[2] **or** **CO 3313 News Writing (for Broadcast Meteorology emphasis)**	3
GR 1603 Intro to Meteorology	*3*	**GR 1604 Weather and Climate**	**4**
GR 4402 Weather Analysis I	*2*		
GR 4412 Weather Analysis II	*2*		
GR 4422 Weather Forecasting I	2	GR 4422 Weather Forecasting I	2
GR 4432 Weather Forecasting II	2	GR 4432 Weather Forecasting II	2
GR 4613 Applied Climatology	*3*		

GR 4623 Physical Meteorology	3	GR 4623 Physical Meteorology	3
GR 4633 Statistical Climatology[1]	3	GR 4633 Statistical Climatology[1]	3
or ST 3123 Introduction to Statistical Inference		or ST 3123 Introduction to Statistical Inference	
		GR 4643 Physical Climatology	**3**
GR 4733 Synoptic Meteorology	3	GR 4733 Synoptic Meteorology	3
GR 4753 Satellite and Radar Meteorology	*3*		
		GR 4783 Satellite Meteorology	**3**
		or	
		GR 4883 Radar Meteorology	
GR 4823 Dynamic Meteorology I	3	GR 4823 Dynamic Meteorology I	3
GR 4933 Dynamic Meteorology II	3	GR 4933 Dynamic Meteorology II	3
GR 4963 Mesoscale Meteorology	3	GR 4963 Mesoscale Meteorology	3
Choose two of the following: *GG 1133 Planetary Geology* *GG 3133 Introduction to Environmental Geology*	*6-7*	**Choose four of the following:**	**12**
GG 3603 Introduction to Oceanography		GG 3603 Introduction to Oceanography	
GG 3613 Water Resources		GG 3613 Water Resources	
GR 4363 Geographic Information Systems Programming		GR 4363 Geographic Information Systems Programming	
GG 4523 Coastal Environments		GG 4523 Coastal Environments	
GR 4813 Natural Hazards and Processes		GR 4813 Natural Hazards and Processes	
GR 3113 Conservation of Natural Resources		GR 3113 Conservation of Natural Resources	
GR 4203 Geography of North America		GR 4203 Geography of North America	
Any 1000-level Computer Science course			
		GR 4303 Principles of Geographic Information Systems	
		GR 4553 Computer Methods in Meteorology	
		GR 4613 Applied Climatology	
		GR 4813 Natural Hazards and Processes	
		GR 4783 Satellite Meteorology	
		or	
		GR 4883 Radar Meteorology	

		(if not taken as Concentration Course) **GR 4943 Tropical Meteorology**	
Specified Electives See advisor	*20-23*	Specified Electives Consult advisor	**20-21**
AMS (Broadcast Meteorology)		AMS (Broadcast Meteorology)	
GR 4502 Practicum in Broadcast Meteorology I	2	GR 4502 Practicum in Broadcast Meteorology I	2
GR 4512 Practicum in Broadcast Meteorology II	2	GR 4512 Practicum in Broadcast Meteorology II	2
GR 4522 Practicum in Broadcast Meteorology III	2	GR 4522 Practicum in Broadcast Meteorology III	2
GR 4532 Practicum in Broadcast Meteorology IV	2	GR 4532 Practicum in Broadcast Meteorology IV	2
GG 3613 Water Resources	*3*		
GR 4813 Natural Hazards and Processes	*3*		
		CO 2013 Voice and Articulation	**3**
CO 2333 Television Production	3	CO 2333 Television Production	3
CO 3333 Advanced Television Production	3	CO 3333 Advanced Television Production	3
GIS		GIS	
GR 2313 Maps and Remote Sensing	3	GR 2313 Maps and Remote Sensing	3
GR 3303 Survey of Geospatial Technologies	3	GR 3303 Survey of Geospatial Technologies	3
GR 4303 Principles of GIS	3	GR 4303 Principles of GIS	3
GR 4313 Advanced GIS	3	GR 4313 Advanced GIS	3
GR 4323 Cartographic Sciences	3	GR 4323 Cartographic Sciences	3
GR 4323 Remote Sensing of the Physical Environment	3	GR 4323 Remote Sensing of the Physical Environment	3
GR 4353 Geodatabase Design	3	GR 4353 Geodatabase Design	3
ROTC		ROTC	
AS 1012 Foundations of U.S. Air Force-I	2	AS 1012 Foundations of U.S. Air Force-I	2
AS 1022 Foundations of U.S. Air Force-II	2	AS 1022 Foundations of U.S. Air Force-II	2
AS 2012 Air and Space Power-I	2	AS 2012 Air and Space Power-I	2
AS 2022 Air and Space Power-II	2	AS 2022 Air and Space Power-II	2
AS 3013 Air Force Leadership Studies-I	3	AS 3013 Air Force Leadership Studies-I	3
AS 3023 Air Force Leadership Studies-II	3	AS 3023 Air Force Leadership Studies-II	3

AS 4013 National Security Affairs and Preparation for Active Duty-I	3	AS 4013 National Security Affairs and Preparation for Active Duty-I	3
AS 4023 National Security Affairs and Preparation for Active Duty-II	3	AS 4023 National Security Affairs and Preparation for Active Duty-II	3
General Electives Consult Advisor	*1-4*	General Electives Consult Advisor	**0-1**
Total Hours	124	Total Hours	124

Geographic Information Systems (GIS) Concentration		Geographic Information Systems (GIS) Concentration	
		CONCENTRATION DESCRIPTION **This program provides a fundamental background in the geospatial sciences, including geographic information systems, remote sensing, spatial analysis, database management, geospatial modeling, and spatial programming. The geospatial sciences are applicable to many different fields and will prepare students for careers in: government agencies, urban and regional planning, environmental management, intelligence, natural areas management, local government, transportation planning and many others. This program also prepares students for further graduate studies in geospatial disciplines.**	
CURRENT CURRICULUM OUTLINE	Required Hours	**PROPOSED CURRICULUM OUTLINE**	Required Hours
Mathematics		Mathematics	
MA 1313 College Algebra	3	MA 1713 Calculus I	3
MA 1323 Trigonometry	3	MA 1723 Calculus II	3
Natural Sciences		Natural Sciences	
Science with lab (CH, PH, BIO)	6-8	Science with lab (CH, PH, BIO)	6-8
Science without lab (CH, PH, BIO)	3	Science without lab (CH, PH, BIO)	3
Concentration Requirements	*56*	Concentration Requirements	
GR 1603 Introduction to Meteorology	*3*	**GR 1604 Weather and Climate**	**4**
GR 2313 Maps and Remote Sensing	3	GR 2313 Maps and Remote Sensing	3
GR 3303 Survey of Geospatial Technologies	3	GR 3303 Survey of Geospatial Technologies	3
GR 3113 Conservation of Natural Resources	3	GR 3113 Conservation of Natural Resources	3
GR 4303 Principles of GIS	3	GR 4303 Principles of GIS	3
GR 4313 Advanced GIS	3	GR 4313 Advanced GIS	3
GR 4323 Cartographic Sciences	3	GR 4323 Cartographic Sciences	3
GR 4333 Remote Sensing of the Physical Environment	3	GR 4333 Remote Sensing of the Physical Environment	3
GR 4353 Geodatabase Design	3	GR 4353 Geodatabase Design	3
GG 4333 Geowriting[2]	3	GG 4333 Geowriting[2]	3
4000-level departmental courses	12	4000-level departmental courses	12

CSE 1284 Introduction to Computer Programming	4	CSE 1284 Introduction to Computer Programming	4
ST 3123 Introduction to Statistical Inference or GR 4633 Statistical Climatology	3	ST 3123 Introduction to Statistical Inference or GR 4633 Statistical Climatology	3
GR 4343 Advanced Remote Sensing in Geosciences	3	GR 4343 Advanced Remote Sensing in Geosciences	3
PS 4411 Remote Sensing Seminar	1	PS 4411 Remote Sensing Seminar	1
Choose two of the following: GG 3113 Introduction to Environmental Geology GG 3603 Introduction to Oceanography GG 3613 Water Resources[1] GG 4523 Coastal Environments GR 4813 Natural Hazards and Processes	6	Choose two of the following: GG 3113 Introduction to Environmental Geology GG 3603 Introduction to Oceanography GG 3613 Water Resources[1] GG 4523 Coastal Environments GR 4813 Natural Hazards and Processes	6
General Electives Consult advisor	10-13	General Electives Consult advisor	9-12
Total Hours	124	Total Hours	124
[1] Fulfills Computer Literacy Requirement [2] Fulfills Computer Literacy and Writing Requirement		[1] Fulfills Computer Literacy Requirement [2] Fulfills Computer Literacy and Writing Requirement	

Broadcast and Operational Meteorology Concentration (Distance Learning only)		Broadcast and Operational Meteorology Concentration (Distance Learning only)	
		CONCENTRATION DESCRIPTION	
CURRENT CURRICULUM OUTLINE	Required Hours	**PROPOSED CURRICULUM OUTLINE**	Required Hours
Mathematics See A&S Core requirements		Mathematics See A&S Core requirements	
Natural Sciences See A&S Core requirements		Natural Sciences See A&S Core requirements	
Concentration Requirements		Concentration Requirements	
GR 1603 Introduction to Meteorology	*3*	**GR 1604 Weather and Climate**	4
GR 4443 Weather Prediction I	3	GR 4443 Weather Prediction I	3
GR 4453 Weather Prediction II	3	GR 4453 Weather Prediction II	3
GR 4473 Numerical Weather Prediction	3	GR 4473 Numerical Weather Prediction	3
GR 4603 Climatology	3		
GR 4613 Applied Climatology	3	GR 4613 Applied Climatology	3
GR 4623 Physical Meteorology	3	GR 4623 Physical Meteorology	3
GR 4633 Statistical Climatology	3	GR 4633 Statistical Climatology	3
		GR 4643 Physical Climatology	**3**
GR 4713 Synoptic Meteorology I	3	GR 4713 Synoptic Meteorology I **OR GR 4733 Synoptic Meteorology**	3
GR 4753 Satellite and Radar Meteorology	3	GR 4753 Satellite and Radar Meteorology	3
GR 4813 Natural Hazards and Processes	3	GR 4813 Natural Hazards and Processes	3
GR 4913 Thermodynamic Meteorology	3	GR 4913 Thermodynamic Meteorology **OR GR 4823 Dynamic Meteorology I**	3
GR 4923 Severe Weather	3	GR 4923 Severe Weather **OR GR 4963 Mesoscale Meteorology**	3
GG 3603 Introduction to Oceanography	3	GG 3603 Introduction to Oceanography	3
GG 3613 Water Resources[1]	3	GG 3613 Water Resources[1]	3
GG 4333 Geowriting[2] Or CO 3313 News Writing for the Electronic Media	3	GG 4333 Geowriting[2] Or CO 3313 News Writing for the Electronic Media	3
General Electives	25-27	General Electives	24-26
Total Hours	124	Total Hours	124

[1] Fulfills Computer Literacy Requirement [2] Fulfills Computer Literacy and Writing Requirement		[1] Fulfills Computer Literacy Requirement [2] Fulfills Computer Literacy and Writing Requirement	

3. Justification and Student Learning Outcomes

The modifications to the Professional Geology, Broadcast Meteorology, and Professional Meteorology concentrations within the Department of Geoscience are designed to enhance student learning potential by providing a curriculum structure more linked to career needs and goals in the various disciplines. These changes primarily constitute adding flexibility to students' academic careers by providing them opportunities to gain expertise in specific areas that lend themselves towards job success after graduation.

While all seven concentrations were modified, the greatest modification occurred in the broadcast meteorology, professional meteorology, professional geology, and distance learning concentrations. As such, specific learning outcomes and justification will be provided for each of those groups individually. The modification proposed for Environmental Geoscience, Geography, and Geospatial Sciences was identical and those will be lumped into a single section. Due to the differences in the geology and meteorology curriculums as they relate to departmental requirements, the specific justification and learning outcomes for the three concentrations included in this program modification vary. As a result, information specific to each concentration is provided below to provide clarity on the associated justifications.

3a. Professional Geology

Justification

This modification seeks to relieve confusion regarding preparation for careers in environmental consulting. A broad description of career options for geoscience majors has been removed from the first part of the description of Department of Geoscience offerings and replaced with a specific description of career paths for Professional Geology Majors to be positioned directly before the Professional Geology Curriculum Outline.

Specific changes include: Addition of GG 4633 Introduction to Geochemistry as one more choice between PH 1133 General Physics III or GG 4233 Applied Geophysics. This addition was made because GG 4233 Applied Geophysics is only offered every other year, alternating with GG 4633 Introduction to Geochemistry.

GR 4303 Principles of GIS is added as a required course for all Professional Geology majors and the required number of General Electives is reduced from 12 hours to 9 hours.

The new course GG 4446 Summer Geology Field Camp is now required in the place of asking students to take a field course from another university.

Phrases such as "choose one course from" are replaced with phrases such as "choose three hours from" because the course GR 1604 Weather and Climate has changed from a three-hour course to a four-hour course.

The list of senior level geoscience electives from which the students had and still have to select three courses or nine hours has been rearranged by professional emphasis to help students select the most

appropriate courses for their preferred career paths. The first two, Environmental Professional Emphasis and Petroleum Professional Emphasis, include the same courses listed in the old curriculum, they are just regrouped by potential career path. The third, a new Geospatial Professional Emphasis, is designed to help students select the most useful courses and includes GR 4313 Advanced GIS, GR 4313 Advanced GIS, GR 4313 Advanced GIS, GR 4343 Advanced Remote Sensing, and GR 4363 Geographic Information Systems Programming. Students can take any three courses from any of these emphasis groups. These lists are presented to guide students in their choices, to emphasize the potential career paths for a Professional Geology Major, and to reduce confusion regarding the Environmental Geosciences Degree.

With the variety of possible fields available to students upon graduation, it is important they have the flexibility to tailor their learning around their specific career goals. Recent advances in Professional Geology have specifically revealed the need for more GIS knowledge, so the addition of the Geospatial Professional Emphasis will better prepare students for the evolving career field in geology.

Student Learning Outcomes and Assessment

The goal of this curriculum is to prepare students for a career as a professional geologist, including preparation of students for graduate studies in geology. Upon completion of this degree program, students will be able to:

- Work in the oil and gas industry
- Serve as environmental consultants
- Be prepared for graduate study in geology

The assessment of these learning outcomes will be completed by student performance in the ASBOG, National Association of State Boards of Geologists exam.

3b. Broadcast Meteorology

Justification

A broad description of career options for geoscience majors has been removed from the first part of the description of Department of Geoscience offerings and replaced with a specific description of career paths for Broadcast Meteorology majors to be positioned directly before the Broadcast Meteorology Curriculum Outline.

The modifications to this concentration are meant to enhance the knowledge-base of graduating students by providing an extended list of available meteorology classes within the Department of Geosciences. Additionally, the required communication and practicum courses associated with the Broadcast Meteorology degree have been placed within the curriculum to meet departmental and free elective requirements, thereby streamlining the curriculum for easier planning and advising. The additional meteorology courses allow for more variation in student programs of study, thereby allowing students to focus their education on specific areas while still maintaining a strong background in meteorological forecasting and applications.

One specific change of note is the replacement of GR 1603 (Introduction to Meteorology) with GR 1604 (Weather and Climate). GR 1604 includes a substantially redesigned curriculum to help improve meteorological knowledge for Geoscience majors before entering upper-level meteorology courses, and also includes a lab to provide more hands-on and applied training. Also, the course material is more inclusive of current weather and climate topics to help improve recruitment of majors from within the class.

Student Learning Outcomes and Assessment

Upon completion of the Broadcast Meteorology program, students will:

- Meet or exceed industry requirements for broadcast meteorology technical knowledge
- Have on- and off-screen experience related to television broadcasting
- Be able to earn the National Weather Association (NWA) seal for Broadcast Meteorology
- Have technical mastery of basic meteorology concepts allowing them to succeed in the field of Broadcast Meteorology

The success of the Broadcast Meteorology Program will be assessed through a post-graduate survey which targets specific meteorological expertise and through the determination of job placement numbers in broadcast meteorology careers once students have graduated. These are in line with how the degree is currently assessed. Improvements in these areas will demonstrate the benefits offered by this new curriculum.

3c. Professional Meteorology

Justification

A broad description of career options for geoscience majors has been removed from the first part of the description of Department of Geoscience offerings and replaced with a specific description of career paths for Professional Meteorology majors to be positioned directly before the Professional Meteorology Curriculum Outline.

The modifications to this concentration are meant to enhance the knowledge-base of graduating students by providing an extended list of available meteorology classes within the Department of Geosciences. The additional meteorology courses allow for more variation in student programs of study, thereby allowing students to focus their education on specific areas while still maintaining a strong background in meteorological forecasting and applications. This will help students prepare for future studies in graduate school, or enhance their potential for employment in the public or private sectors.

One specific change of note is the replacement of GR 1603 (Introduction to Meteorology) with GR 1604 (Weather and Climate). GR 1604 includes a substantially redesigned curriculum to help improve meteorological knowledge for Geoscience majors before entering upper-level meteorology courses, and also includes a lab to provide more hands-on and applied training. Also, the course material is more inclusive of current weather and climate topics to help improve recruitment of majors from within the class.

Student Learning Outcomes

Upon completion of the Professional Meteorology program, students will be able to:

- Obtain an American Meteorological Society (AMS) seal (for broadcast meteorology)
- Obtain civil service requirements, qualifying them for jobs within the federal government including in the National Weather Service
- Have technical mastery of basic meteorology concepts such that they could pursue graduate studies in the field

The success of the Professional Meteorology Program will be assessed through a post-graduate survey which targets specific meteorological expertise and through the determination of job placement numbers in broadcast meteorology careers once students have graduated. These are in line with how the degree

is currently assessed. Improvements in these areas will demonstrate the benefits offered by this new curriculum.

3d. Broadcast and Operational Meteorology

Justification

We request the proposed change in Intro to Meteorology (going from 3 to 4 credits and renaming to Weather and Climate) to remain consistent with our on-campus program.

The other proposed course changes will help make our students more marketable by requiring the classes that are required by employers or other professional bodies. For example, the National Weather Service specifically recommends a Physical Climatology class. We had been requiring a more general Climatology. The addition of the other classes will allow students to meet both American Meteorological Society and NWS requirements while also meeting NWA and WMO requirements. Most US meteorology programs allow students to meet NWS and AMS eligibility requirements. Our students have consistently expressed a desire to be able to meet NWS and AMS requirements.

Student Learning Outcomes and Assessment

Upon completion of the Broadcast and Operational Meteorology program, students will:

- Be able to earn the National Weather Association (NWA) seal for Broadcast Meteorology
- Obtain civil service requirements, qualifying them for jobs within the federal government including in the National Weather Service (if following the AMS seal guidelines for course selection)
- Have technical mastery of basic meteorology concepts such that they could pursue graduate studies in the field

3e. Geography, Environmental Geoscience, and Geospatial

The only proposed changes for these three concentrations is the replacing of GR 1603 Introduction to Meteorology with GR 1604 Weather and Climate and the addition of a detailed concentration description for each concentration, in line with the changes being proposed for the other concentrations.

Justification

This is simply a course number modification as GR 1603 will no longer be offered.

Student Learning Outcomes and Assessment

There is no change to the current student learning outcomes and assessment.

3f. Programmatic Review Assessment

While the extent of the proposed changes is approaching 15%, most changes are occurring in the Professional Meteorology, Broadcast Meteorology, and Professional Geology concentrations.

1. **Comparison with leading academic program in the discipline**

   The University of Oklahoma has begun tailoring their degree program in meteorology (which is suitable for both broadcast and professional concentrations at their institution) to allow students flexibility in building their degrees. They have introduced important classes in tropical meteorology, climate science (including renewable energy), global climate change (in line with GR 4643 Physical Climatology), and remote sensing courses similar to GR 4883 Radar Meteorology or GR 4783 Satellite

Meteorology. Additionally, they have a survey course that is available to their university that is named Weather and Climate (as is proposed for GR 1604).

The most important modifications of our Professional Geology program are the development of Introduction to Geochemistry (GG 4633) and Summer Geology Field Camp (GG 4446) courses. Geochemistry is a core discipline in many other geology programs including Caltech (Ge 101), Rensselaer Polytechnic Institute (ERTH 4690), and the University of Alabama (GEO 470). Geology Field Camp is an important part of many Geology programs including Caltech (Ge 120b) and in line with program on Bachelor of Science in Geology (GEO 495) at the University of Alabama.

2. Graduate assessment and feedback on their preparedness for employment

Each year as part of our Institutional Effectiveness we conduct a departmental survey of our graduate students specifically addressing questions regarding preparedness for employment, etc. Survey results are typically limited to a small number of respondents (in 2016-2017, we had 70 responses), but they generally suggest success with our students in terms employment. Responses suggested strong (4.1-4.7) averages on a variety of preparedness questions, including

- Knowledge and application of the latest technologies (4.4)
- Knowledge and application of mathematics, scientific methods, and related quantitative skills (4.4)
- Leadership skill development (4.3)
- Learning to think and work independently (4.7)
- Pre-graduation engagement in professional experiences (4.1)
- Development of a commitment to lifelong learning (4.6)

Similarly, an email poll was sent out to graduating students in meteorology and geology, and of the small number of responses (8 total responses), 6 indicated some form of employment either in graduate school or in the field of geosciences, while 2 are still searching for jobs.

We expect that as the new curriculum is integrated into our program that many of these assessments, particularly with regard to knowledge of latest technologies, methods, and independent work/thought will demonstrate improvement over the current status, and that our student post-graduation employment numbers will respond upward as a result.

3g. Required Questions

- *Will this program change meet local, state, regional, and national educational and cultural needs? If so, please describe.*

With the advent of more specific careers focused heavily on geospatial science and new technologies within the field of meteorology, these changes should dramatically improve our curriculum to remain in line with advances in all geoscience fields.

- *Will this program change result in duplication in the System? If so, please describe.*

There will be no duplication from this program change. We are primarily modifying content, not adding content.

- *Will this program change/advance student diversity within the discipline? If so, please describe.*

The changes will likely not dramatically alter diversity within the discipline as they are primarily science content in nature. However, the additional courses will certainly open up more career opportunities for our students, which are already quite diverse compared to geoscience students around the nation, and the additional employment opportunities will likely lead to increased diversity in geoscience fields.

- *Will this program change result in an increase in the potential placement of graduates in MS, the Southeast, and in the U.S.? If so, please describe.*

The introduction of focus areas in both the meteorology and geology curricula will be very U.S. focused (particularly in meteorology), allowing students to work with new technologies and advancements by U.S. scientists. It is only logical to expect that those results will translate into additional placement of students within the U.S., many of whom will be placed within the Southeast where oil and gas resources are plentiful.

- *Will this program change result in an increase in the potential salaries of graduates in MS, the Southeast, and the U.S.? If so, please describe.*

By adding geospatial components to each degree concentration and introducing students to technologies used in their respective fields, it is likely that the additional skills students will attain under these changes will result in an increase of average salary for our graduates.

4. Support

A letter of support from the Department of Geosciences Curriculum Committee is attached to this proposal. As no classes were added outside of Geosciences, no additional letters were required.

5. Proposed 4-letter abbreviations (will remain unchanged):

Professional Geology: GEOL

Environmental Geoscience: ENGS

Geography: GPHY

Broadcast Meteorology: BMP

Professional Meteorology: PMET

Geographic Information Systems: GIS

Broadcast and Operational Meteorology BOPM

6. Effective Date

Fall 2018

7. CIP Number

40.0601

MISSISSIPPI STATE
UNIVERSITY

October 27, 2017

College of Arts and Sciences and the University Courses and Curriculum Committees

Mississippi State University

RE: Degree Modification for Bachelor of Science in Geosciences

Dear Curriculum Committee,

The Department of Geosciences Curriculum Committee has met and discussed proposed degree modification for the Bachelor of Science in Geosciences. We strongly agree with the need for the proposed changes and feel that this update will make our program much more competitive, benefiting not only our students but the university. We also agree with the importance of aligning our distance learning curriculum with our current on-campus offerings and support those changes as well. We fully support the adoption of this new curriculum. If you have any questions, please do not hesitate to contact me.

Respectfully,

Andrew Mercer (Committee Chair)

Kathleen Sherman-Morris (Committee Member)

Rinat Gabitov (Committee Member)

Shrinidhi Ambinakudige (Committee Member)

Cc: Dr. John C. Rodgers, Interim Department Head of Geosciences

Current Catalog Descriptions for Undergraduate Curriculum (Geography/GR):

Subject	Course	Title	Course Description
GR	1001	First Year Seminar	One hour lecture. First-year seminars explore a diverse array of topices that provide students with an opportunity to learn about a specific discipline from skilled faculty members.
GR	1114	Physical Geography	Three hours lecture. Two hours laboratory. Systematic study of the elements of the environmental process that form and characterize the earth's natural landscapes. May be taken as a science elective.
GR	1123	Intro World Geog	Three hours lecture. A survey of the world's regions, with emphasis upon locational aspects, physical and cultural diversity, and environmental issues.
GR	1603	Intro To Meteorology	(Prerequisite: GR 1114, GR 1113 or equivalent). Three hours lecture. Descriptive study of weather with the objective of gaining appreciation of the variety of atmospheric phenomena. Explanation of daily weather events, their causes and impacts.
GR	2013	Cultural Geography	Three hours lecture. Study of human occupance of the Earth, treating geographic aspects of population, settlement, origin and diffusion of cultural traits, resource utilizing systems, and political factors.
GR	2313	Maps Remote	Two hours lecture. Two hours laboratory. Fundamental principles of cartography and remote sensing, including types and applications. Attention is given to interpretation of surface features, environmental problem solving, and environmental planning.
GR	2990	Special Topic In GR	Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years).
GR	3113	Conserv Of Nat Res	Three hours lecture. Consideration of the current problems associated with the conservation of soils, forests, waters, minerals, and wild life in the United States and the world.
GR	3303	Survey Geospatial Tech	(Prerequisite:GR 2313 or Consent of Instructor).Three hours lecture. Geographic Information Systems,Remote Sensing and Global Positioning Systems applied to earth systems and science. Includes field excursions for hands on experience with currrent technologies.
GR	4000	Directed Indiv Study	Hours and credits to be arranged.
GR	4123	Urban Geog	Three hours lecture. Historic trends in distribution and growth of urban settlements, urban location theory; economic bases, functions, and structure of cities and metropolitan areas; urban problems; planning.
GR	4203	Geog Of N. America	Three hours lecture. A regional survey of the United States and Canada with emphasis upon place names, physical landscapes, historical settlement patterns, cultural regions, and environmental issues.
GR	4213	Geog Of Lat Amer	Three hours lecture. A regional survey of Latin America with emphasis upon place names, physical environments, cultural landscapes and their evolution, and environmental issues.
GR	4223	Geog Of Europe	Three hours lecture. A regional survey of Europe with emphasis upon placements, physical environments, cultural landscapes, geopolitical evolution, and environment issues.
GR	4233	Geog Of Asia	Three hours lecture. A regional survey of Asia with emphasis upon placenames, physical geography, cultural diversity and cultural landscapes, geopolitical conflicts, and environmental issues.
GR	4243	Geog Of Russia	Three hours lecture. A regional survey of the former Soviet Union republics with emphasis upon placenames, physical environments, ethnic diversity, geopolitical evolution, and environmental issues.
GR	4253	Geog Of Africa	Three hours lecture. A regional survey of the African continent with emphasis upon placenames, physical geography, cultural diversity and cultural landscapes, geopolitical changes, and environmental issues.
GR	4263	Geography Of South	Three hours lecture. A regional survey of the South with emphasis upon physical and cultural landscapes, settlement patterns, ethnic diversity, tourism development, and environmental issues.
GR	4283	Geog of Islamic World	A regional survey of Islamic countries of the world with emphasis upon physical landscapes, cultural landscapes and their evolution, geopolitical conflicts and environmental issues.
GR	4303	Principles of GIS	(Prerequisite: Junior or graduate standing or consent of instructor) Two hours lecture and two hours laboratory. Spatial analysis and topological relationships of geographic data using Geographic Information Systems, with emphasis on GIS theory.

GR	4303	Principles of GIS	(Prerequisite: Junior or graduate standing or consent of instructor) Two hours lecture and two hours laboratory. Spatial analysis and topological relationships of geographic data using Geographic Information Systems, with emphasis on GIS theory.
GR	4313	Advanced GIS	(Prerequisite:GR 4303/6303 or consent of instructor). Two hours lecture. Two hours laboratory. Vector-based file structure and GIS queries using spatial and geodatabases attributes. Descriptive and prescriptive modeling in the raster domain including regression and linear weighted modeling.
GR	4323	Cartographic Sciences	(Prerequisite: Junior or graduate standing or consent of instructor.) Two hours lecture. Two hours laboratory. Principles of cartographic theory and map design. Types of maps, map projections, proportional symbols, use of color, mapping and statistics, interactive maps, and map animation.
GR	4333	Remote Sensing Phys Env	(Prerequisite: GR 3303, GR 3311 or consent of instructor). Two hours lecture. Two hours laboratory. Examines remote sensing methods applicable to large-area analyses of watershed-level drainage systems, urban landscape, landscape vegetation metrics, physical landscape structural components and atmospheric features.
GR	4343	Adv Remot Sensing/Geosci	(Prerequisite: Either GR 4333/6333, ECE 4423/6423, or FO 4452/6452 or consent of instructor). Two hours lecture. Two hours laboratory. Geospatial image analysis; Theoretical basis of radiative transfer in atmosphere and water column; Quantitative remote sensing techniques and geospatial product development.
GR	4353	Geodatabase Design	(Prerequisite: GR 4303/6303 or consent of instructor). Three hours lecture. Examination of Geodatabase structures. Integration of relational databases with Geographic Information Systems. Management of spatial data using geodatabases. Implementation of Geodatabase processes through spatial programming.
GR	4363	GIS Programming	(Prerequisite: Either GR 4303/6303 or consent of instructor). Two hours lecture. Two hours laboratory. Design and implementation of geoprocessing scripts. Incorporation of modeling languages within geographic information systems (GIS) analysis. Seamless integration of other software programs with GIS software.
GR	4402	Weather Analysis I	(Prerequisite: GR 1603 or equivalent). One hour lecture. Two hours laboratory. Introduction to real-time weather information such as Difax charts, satellite and radar imagery, and text data. Emphasis on Nowcasting.
GR	4411	Remote Sensing Seminar	(Prerequisite:Junior Standing). One hour lecture. Lectures by remote sensing experts from industry, academia, and governmental agencies on the next- generation systems, applications, and economic and societal impact of remote sensing. May be repeated for credit up to four credits. (Same as PSS 4411/6411, ECE 4411/6411, FO 4411/6411).
GR	4412	Weather Analysis II	(Prerequisite: GR 4402/6402). One hour lecture. Two hours laboratory. Continuation of Weather Analysis I. Advanced analysis of weather data in Nowcasting.
GR	4422	Weather Forecasting I	(Prerequisite: GR 4412/6412). One hour lecture. Two hours laboratory. Introduction to the process of creating and disseminating weather forecasts. Use of current weather data in creating daily forecsts for the local area.
GR	4432	Wx Forecasting II	(Prerequisite:GR 4422/6422). One hour lecture. Two hours laboratory. Continuation of Weather Forecasting I. Emphasis placed on disseminating both oral and written forecasts for the local area.
GR	4443	Weather Prediction I	(Prerequisite: GR 1603 or consent of instrucor). Three hours video and online. Examination of the complexity of weather forecasting. Emphasis on numerical weather prediction, computer models, and mesoscale analysis.
GR	4453	Weather Prediction II	(Prerequisite: GR 4443 or consent of instructor). Three hours video and online. Continuation of GR 4443. Case studies of weather forecasts. Emphasis on special weather events and places.
GR	4473	Numerical Wx Prediction	(Prerequisite: Consent of Instructor). This course provides students with an overview of the theory, processes, developments and applications of existing numerical weather prediction platforms.
GR	4502	Prac Broadcast Meteorology I	(Prerequisite: GR 1603 or equivalent). One hour lecture. Two laboratory. Introduction to developing a weather story with emphasis on producing weather graphics for television, chroma key mechanics, and weathercast communication.
GR	4512	Practicum Bd Meth II	(Prerequisite:GR 4502/6502). One hour lecture. Two hours laboratory. Continuation of Practicum in Broadcast Meteorology I with emphasis on weather graphics production, weathercast performance, image, and communication. Supported by lab practice.
GR	4522	Prac Broadcast Meteorology III	Prerequisite: GR 4512/6512. One hour lecture. Two hours laboratory. Emphasis on advanced weathercasting, including field reporting, severe weather, and building graphics. Students are assigned actual television weather shows, with performance emphasis in the lab.

GR	4532	Practicum Bd Met IV	(Prerequisite:GR 4522/6522).One hour lecture.Two hours laboratory. Emphasis on the weathercasting job market in television. Students create actual television weather shows, and focus on producing a resume tape during the semester.
GR	4553	Comp Methods in Meteorology	(Prerequisite: GR 1603 or graduate status). Two hours lecture, two hours lab. Overview of computational methods and techniques commonly used in operational meteorology, focusing on scientific visualization and analysis, and numerical weather prediction.
GR	4603	Climatology	(Prerequisite: GR 1114 or GR 1123, or equivalent). Three hours lecture. Study of the elements and controls of weather and climate, distribution and characteristics of climatic regions.
GR	4613	Applied Climatology	(Prerequisites: GR 1603 or equivalent.) Two hours lecture. Two hours laboratory. Problem solving in today's world in topics such as bioclimatology, agricultural climatology and land use climatology.
GR	4623	Physical Meteorology	(Prerequisite:GR 1603). An investigation of cloud physics/precipitation processes and solar/terrestrial radiation, including atmospheric dynamics, atmospheric electricity, optics, and instrumentation.
GR	4633	Statistical Clim	(Prerequisites: GR 1603 or GG 1113 or equivalent and MA 1313 or MA 1713).Two hours lecture. Two hours laboratory. A survey of the types of statistical weather data available. Manipulation of the data on various temporal and spatial scales.
GR	4640	Met Internship	(Prerequisite: Consent of Instructor). Hours and credits to be arranged. Internship with television station, private company or government agency under supervision of instructor.
GR	4643	Physical Climatology	(Prerequisite: GR 1603 Introduction to Meteorology) Three hours lecture. An investigation of the physical aspects of Earth's climate, including interactions between the atmosphere, hydrosphere, and land surface, and how they are affected by climate variability and change.
GR	4713	Synoptic Met I	(Prerequisites: GR 1603 or equivalent.) Two hours lecture. Two hours laboratory. Fundamental principles behind weather forecasting. Physical processes in the atmosphere, atmospheric circulation systems, air mass analysis, frontogenesis and frontolysis.
GR	4733	Synoptic Meteorology	(Prerequisite:GR 1603 and MA 1713) Three hour lecture. Principles and derivation of meteorological theory. Emphasis on energy exchanges, atmospheric moisture, physical processes of atmospheric motion, air masses and fronts, and cyclogenesis.
GR	4753	Satellite & Radar Meteorology	(Prerequisite: GR 1603.) Three hours lecture. Study of the history, the operations, and the applications of satellites and radar in weather analysis. Theory of meteorological measurements in determinations of atmospheric structure.
GR	4813	Natural Hazards	(Prerequisites: GR 1114 or equivalent.) Three hours lecture. A survey of natural phenomena in geology, oceanography and astronomy as applied to meteorology. Detailed study of earthquakes, volcanoes, ocean movements, and solar activity.
GR	4823	Dynamic Meteorology I	(Prerequisite:GR 4733/6733) Three hours lecture. In-depth examination of theoretical methods for determining atmospheric stability and the tools necessary to interrogate the vertical profile of the atmosphere.
GR	4841	Severe Storm Observation	(Prerequisite: Consent of instructor). One hour field experience. Real-world practice in forecasting,nowcasting observation, and reporting of severe storms in U.S. Great Plains.
GR	4842	Forecasting Severe Local Storm	(Prerequisite: Consent of Instructor.) One hour lecture and two hour lab. This course provides a theoretical overview and practical application of the severe local storms forecasting process.
GR	4843	Severe Storm Methods	Prerequisite: consent of instructor). Two hours lecture. One hour field experience. Application of the latest synoptic and mesoscale severe weather forecasting methods concluding with field operations in the U.S. Great Plains.
GR	4883	Radar Meteorology	(Prerequisite: GR 4733.) Two hours lecture. Two hours lab. Study of the history, the operation, and the application of radar in weather analysis. Theory and application of radar measurements in the determination of meteorological threats.
GR	4913	Thermodynamic Met	(Prerequisite:GR 4723/6723 or equivalent). Three hours lecture. Examination of the meteorological stability within the earth's atmosphere. Focus on analysis of the various stability indices related to predicting severe weather.
GR	4923	Severe Weather	(Prerequisities: GR 4913/6913 or equivalent).Three hours lecture. Descriptive study of severe and unusual weather across the earth. Explanation of variations in severe weather in both spatial and temporal scales.
GR	4933	Dynamic Meteorology II	Three hours lecture. (Prerequisite GR 4823/6823 and MA 2733) Quantitative analysis and consideration of atmospheric circulation including jet streams, mid-latitude cyclones, vorticity and atmospheric kinetics.
GR	4943	Tropical Meteorology	(Prerequisite: Consent of Instructor). Three hours lecture. Topics include the dynamics and circulation of the tropical atmosphere, characteristics of tropical cyclones, and forecasting methodologies for tropical weather.
GR	4963	Mesoscale Meteorology	(Prerequisite:GR 4913/6913). Three hours lecture. Descriptive and physical understanding of Mesoscale processes and their relevance to the synoptic environment. A strong focus will be placed upon Severe Local Storms.
GR	4990	Special Topic In GR	Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years).

Current Catalog Descriptions for Undergraduate Curriculum (Geology/GG):

Subject	Course	Title	Course Description
GG	1111	Earth Science I Lab	Two hours laboratory. Laboratory for GG 1113, but may be scheduled without GG 1113. Includes study of earth materials, maps, and aerial photographs. Planned primarily as a science elective for the non-geology major.
GG	1113	Survey Earth Sci I	Three hours lecture. Study of the Earth in space, the materials of which the Earth is composed, and the processes affecting change on the Earth. Planned primarily as a science elective for the non-geology major.
GG	1121	Earth Science II Lab	Two hours laboratory. Laboratory for GG 1123, but may be scheduled without GG 1123. Includes the study of fossils, geologic maps, and geologic cross sections. Planned primarily as a science elective for the non-geology major.
GG	1123	Survey Earth Sci II	(Prerequisite: GG 1113, or equivalent). Three hours lecture. Origin and development of the Earth through geologic time. Planned primarily as a science elective for the non-geology major.
GG	1133	Planetary Geology	Three hours lecture. Process oriented examination of the planets and their satellites with emphasis on the "Earth-like" planets and moons.
GG	2990	Special Topic In GG	Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years).
GG	3133	Intro Environ Geol	(Prerequisite: GG 1113). Three hours lecture. Consideration of those aspects of earth science concerned with problems arising from intensive use of earth by modern society.
GG	3603	Intro To Oceanograph	(Prerequisite: GG 1113). Three hours lecture. A survey of the basic principles and applications of science to the study of the marine environment.
GG	3613	Water Resources	(Prerequisite: GG 1113 or equivalent or consent of instructor.) Three hours lecture. Introduction to the location, use, recovery and environmental problems of surface and subsurface waters.
GG	4000	Directed Indiv Study	(Prerequisite: Junior standing). Hours and credits to be arranged.
GG	4033	Resources & the Environ	(Prerequisite: Consent of instructor). Three hours lecture. Formation and development of natural resources involving the basic evolution, planning, and design of a typical lignite coal mine, including environmental monitoring and reclamation.
GG	4063	Dev of Fossil Fuel Res	(Prerequisite: Consent of instructor). Three hours lecture. Formation, deposition, and extraction of fossil fuel resources. Petroleum and coal will be the main fossil fuels examined.
GG	4113	Micropaleontology	(Prerequisite: GG 1123 or equivalent). Three hours lecture. A study of microscopic fossils. May be taken with GG 4201.
GG	4114	Mineralogy	(Prerequisites: GG 1113 and CH 1223, or equivalents). Three hours lecture. Three hours laboratory. The physical and chemical properties of minerals; crystallography, origin, distribution, association, uses, and identification of minerals.
GG	4123	Petrology	(Prerequisite: GG 4114, or equivalent). Two hours lecture. Three hours laboratory. The origin, occurrence, and classification of the major rock types.
GG	4153	Engineering Geology	(Prerequisite: GG 1113 or equivalent). Two hours lecture. Two hours laboratory. Application of geologic principles to location and construction of engineering structures; engineering properties of geologic materials; engineering application of equipment used by geologists.
GG	4201	Prac In Paleontology	(Prerequisites: GG 1123 or equivalent). One hour lecture. Two hours laboratory. Laboratory for GG 4203, but may instead be taken with GG 4113 or GG 4133. A practicum in morphology of fossils, biostratigrapgy, and paleoecology.
GG	4203	Prin Of Paleobiology	(Prerequisites: GG 1123 or equivalents). Three hours lecture. Three hours laboratory. An introductory study of topics in paleobiology. May be taken with GG 4201.
GG	4233	Applied Geophysics	(Prerequisite: Consent of instructor). Three hours lecture. A survey of the basic principles and applications of geophysics with major emphasis on petroleum exploration.
GG	4304	Prin Sed Dep I	(Prerequisite: GG 4114/6114 or consent of instructor. Three hours lecture. Three hours laboratory. Treatment of sediment and sedimentary rock. Emphasis on texture, fluid processes, deposition, structure, and diagenesis; stratigraphic analysis; and application to subsurface flow systems.
GG	4333	Geowriting	Three hours lecture. Prepares students to present geosciences information through research papers and other forms of professional communication. Emphasizes writing for careers or advanced study in the geosciences.
GG	4403	Gulf Coast Strat	(Prerequisite: GG 4304 or consent of instructor). Three hours lecture or field trips. Systematic study of the stratigraphy of the Gulf Coast; actual field experience substituted for class work when conditions permit.
GG	4413	Structural Geology	(Prerequisites: GG 4123 or consent of instructor). Two hours lecture. Two hours laboratory. Application of the principles of mechanics to the forces deforming the rocks of the Earth's crust; emphasis on structures in sedimentary rocks.
GG	4433	Subsurface Methods	(Prerequisite: GG 4443 and GG 4413, or equivalent). One hour lecture. Four hours laboratory. The study of subsurface geologic methods including contouring, sampling study, various types of logging, and the interpretation of subsurface data.
GG	4443	Prin Sed Dep II	(Prerequisite: GG 4304). Three hours lecture. Application of principles from GG 4304. Introduces facies associations produced in depositional environments, systems, and systems tracts, tectonics and sedimentation, basin classification, and sequence analysis.
GG	4503	Geomorphology	(Prerequisite: Consent of instructor). Three hours lecture. The origin and characteristics of land forms based on a consideration of geologic processes, stages of development, and geological structure.

GG	4523	Coastal Environments	(Prerequisite: GG 1113 or consent of instructor). Three hours lecture. An introduction to world coastal environments, with emphasis upon major shoreline-shaping processes, geographical variation in coastal landforms, human impacts, and environmental concerns.
GG	4533	Geosciences Study Abroad	(Prerequisite: consent of instructor). Three hours study abroad. Identification of landforms and geomorphic processes and the field data collection techniques. Emphasis on human-environmental interactions.
GG	4613	Phys Hydrogeology	(Prerequisite: GG 3613 or consent of instructor). Three hours lecture. Advanced study of the interrelationship of ground water and its geologic environment with emphasis on occurrence, distribution, and movement.
GG	4623	Chem Hydrogeology	(Prerequisite: CE 3523, CE 8563, or GG 4613/6613 or consent of instructor). Three hours lecture. Advanced study of groundwater and its environment with emphasis on the chemical interaction of water with porous solids and the transport of chemical constituents.
GG	4633	Intro Geochem	(Prerequisite: CH 1223, or consent of instructor). Three hours lecture. Survey of fundamental geochemical principles and methods. Learning in this course will be achieved by participation in analysis of published or unpublished datasets with further interpretation and application to the natural systems.
GG	4990	Special Topic In GG	Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

Description for New or Modified Courses:

GR 1604 Weather and Climate. Three hours lecture, on hour lab. Descriptive study of weather with the objective of gaining appreciation of the variety of atmospheric phenomena. Explanation of daily weather events, their causes and impacts.

GG 4063 Earth and Atmospheric Energy Resources. Three hours lecture. Formation, deposition, and extraction of fossil fuel resources, including coal, conventional, and unconventional hydrocarbons. Introduction to the geologic, geographic, and climatic aspects of Earth and atmospheric-sourced renewable resources.

APPROVAL FORM FOR

DEGREE PROGRAMS

MISSISSIPPI STATE UNIVERSITY

NOTE: This form is a cover sheet that must accompany the degree program change proposal. The actual proposal should be prepared in accordance with format requirements provided in the *Guide and Format for Curriculum Proposals* published by the UCCC. Both cover sheet and proposal should be submitted to UCCC Mail Stop 9702 (281 Garner Hall), Phone: 325-9410.

College: Arts & Sciences **Department: Geosciences**

Contact Person: Andrew Mercer **Mail Stop: 9537** **E-mail: aem35@msstate.edu**
Nature of Change: Modification **Date Initiated: 11-3-17** **Effective Date: Fall 2018**

New or Current Degree Program Name: Certificate in Broadcast and Operational Meteorology

Summary of Proposed Changes:

Several minor changes are being proposed for the Distance Learning Certificate in Broadcast and Operational Meteorology to align the certificate more closely with its on-campus counterpart. These changes include:

- **The catalog description was updated to incorporate more recent rules and name changes within the certificate, particularly those regarding military service and National Weather Association requirements.**
- **The operational meteorology certificate description was removed and blended in with the broadcast certificate to reflect a single program.**
- **Several courses were removed and added, including**
  - **GR 4603 Climatology was replaced with GR 4643 Physical Climatology**
  - **GR 1603 Introduction to Meteorology was replaced with GR 1604 Weather and Climate**
- **Options were given for students interested in American Meteorological Society professional eligibility requirements by offering different versions of courses currently used in distance learning.**

Approved:	Date:
John C. Rodgers III Department Head	Nov 3, 2017
Brunnie Carr O'Neill Chair, College or School Curriculum Committee	2/26/2018
Nicole Reed Dean of College or School	2/28/18
Chair, University Committee on Courses and Curricula	
Chair, Graduate Council(if applicable)	
Chair, Deans Council	

DEGREE MODIFICATION FOR DISTANCE EDUCATION (Campus 5)
Broadcast Meteorology and Operational Meteorology Certificates

CURRENT CATALOG DESCRIPTION		PROPOSED CATALOG DESCRIPTION	
Broadcast Meteorology Certificate Successful completion of the *52* credit hours offered in the BMP can lead to a Certificate in Broadcast Meteorology from Mississippi State University. In order to receive this certificate, the Department of Geosciences requires successful completion of the 17 courses with a grade of "C" or better. After completion of the *52* credit hours, students must be present at the Summer Workshop *(four days)* in August in order to receive the certificate. The workshop includes a series of hands-on sessions presented by MSU faculty, *the National Weather Service* and other experts. After the workshop, students complete the final exam via the internet. Students must score a minimum of 80% to be awarded the certificate. Students are allowed up to three attempts to score 80% or better on the exam.		Broadcast **and Operational** Meteorology Certificate Successful completion of the **53** credit hours offered in the BMP can lead to a Certificate in Broadcast **and Operational** Meteorology from Mississippi State University. **Completion of the program can also fulfil the meteorological requirements for the National Weather Association.** In order to receive this certificate, the Department of Geosciences requires successful completion of the 17 courses with a grade of "C" or better. After completion of the **53** credit hours, students must be present at the Summer Workshop in August in order to receive the certificate. **Those who provide documentation of being active duty military will be exempt from the workshop requirement.** The workshop includes a series of hands-on sessions presented by MSU faculty and other experts. After the workshop, students complete the final exam via the internet. Students must score a minimum of 80% to be awarded the certificate. Students are allowed up to three attempts to score 80% or better on the exam.	
Operational Meteorology Certificate *Successful completion of the 52 credit hours offered in the OMP can lead to a Certificate in Operational Meteorology from Mississippi State University. In order to receive this certificate, the Department of Geosciences requires successful completion of the 17 courses with a grade of "C" or better. After completion of the 52 credit hours, students must be present at the Summer Workshop (four days) in August in order to receive the certificate. However, those who provide documentation of being active duty military will be exempt from the Workshop requirement as the military provides abundant experience in hands-on forecasting that exceeds the hands-on experience gained at the workshop. The workshop includes a series of hands-on sessions presented by MSU faculty, the National Weather Service and other experts. After the workshop, students complete the final exam via the internet. Students must score a minimum of 80% to be awarded the certificate. Students are allowed up to three attempts to score 80% or better on the exam.*			
CURRENT CURRICULUM	Required hours	PROPOSED CURRICULUM	Required hours

Broadcast Meteorology Certificate GR 1114 Physical Geography GR 1123 World Geography GR *1603* Intro To Meteorology GR 4443 Weather Prediction I GR 4453 Weather Prediction II GR 4473 Numerical Weather Prediction *GR 4603 Climatology* GR 4613 Applied Climatology GR 4623 Physical Meteorology GR 4633 Statistical Clim GR 4713 Synoptic Met I GR 4753 Satellite and Radar Meteorology GR 4813 Natural Hazards GR 4913 Thermodynamic Met GR 4923 Severe Weather GG 3603 Intro To Oceanography GG 3613 Water Resources	52	Broadcast and Operational Meteorology (BOMP) Certificate GR 1114 Physical Geography GR 1123 World Geography **GR 1604 Weather and Climate** GR 4443 Weather Prediction I GR 4453 Weather Prediction II GR 4473 Numerical Weather Prediction **GR 4643 Physical Climatology** GR 4613 Applied Climatology GR 4623 Physical Meteorology GR 4633 Statistical Clim GR 4713 Synoptic Met I **OR GR 4733 Synoptic Meteorology*** GR 4753 Satellite and Radar Meteorology GR 4813 Natural Hazards GR 4913 Thermodynamic Met **OR GR 4823 Dynamic Meteorology I*** GR 4923 Severe Weather **OR GR 4963 Mesoscale Meteorology*** GG 3603 Intro To Oceanography GG 3613 Water Resources *** This choice required to meet some professional eligibility requirements.**	**53**
Operational Meteorology certificate *GR 1114 Physical Geography* *GR 1123 World Geography* *GR 1603 Intro To Meteorology* *GR 4443 Weather Prediction I* *GR 4453 Weather Prediction II* *GR 4473 Numerical Weather Prediction* *GR 4603 Climatology* *GR 4613 Applied Climatology* *GR 4623 Physical Meteorology* *GR 4633 Statistical Clim* *GR 4713 Synoptic Met I* *GR 4753 Satellite and Radar Meteorology* *GR 4813 Natural Hazards* *GR 4913 Thermodynamic Met* *GR 4923 Severe Weather* *GG 3603 Intro To Oceanography* *GG 3613 Water Resources*			

3. TARGET AUDIENCE AND JUSTIFICATION

TARGET AUDIENCE

The BMP and OMP certificate programs target individuals in weather careers who have not had formal education (or not sufficient education) in meteorology. Historically our greatest number of students have been television weathercasters/broadcasters who have backgrounds in communication or journalism. The existing certificates allow them to meet the requirements to earn a seal of the National Weather Association. After broadcasters, military forecasters are the second largest audience. The OMP was designed to provide meteorology education to military forecasters. We now have students in a number of weather-related careers.

JUSTIFICATION

There are four primary changes being made to the certificates:

1. Replace GR 1603 Introduction to Meteorology with GR 1604 Weather and Climate
2. Replace GR 4603 Climatology with GR 4643 Physical Climatology
3. Offer calculus based classes in place of three non-calculus based classes, and
4. Delete the OMP certificate.

We request the **proposed change in Weather and Climate (going from 3 to 4 credits and changing the name)** to remain consistent with our on-campus program.

The **other proposed BMP course changes** will help make our students more marketable by requiring the classes that are required by employers or other professional bodies. For example, the National Weather Service specifically recommends a *Physical* Climatology class. We had been requiring a more general Climatology. The addition of the other classes will allow students to meet both American Meteorological Society and NWS requirements while also meeting NWA and WMO requirements. Most US meteorology programs allow students to meet NWS and AMS eligibility requirements. Our students have consistently expressed a desire to be able to meet NWS and AMS requirements.

We **also propose to delete the OMP certificate and rename the BMP certificate**. Two years ago, we changed the name of our distance degree program to Broadcast and Operational Meteorology to reflect the merger of the two degree concentrations. At the time, we kept both certificate names. We no longer believe it is necessary to offer both. The curriculum is identical; there is no longer a military requirement for the OMP, and changing the certificate will make it more consistent with the degree causing less confusion for students. Students have asked about getting both BMP and OMP certificates, unaware that they were the same. Students declare the certificate at the end of the program, so we do not know how many students are currently working toward the OMP. Typically, between 5 and 10 students receive this certificate each year.

4. STUDENT LEARNING OUTCOMES

Upon completion of the Broadcast and Operational Meteorology Certificate, students will:

- Be able to earn the National Weather Association (NWA) seal for Broadcast Meteorology
- Have a strong knowledge-base in general meteorological topics, including synoptic and physical meteorology, remote sensing platforms (i.e., radar and satellite), and forecasting
- Have enhanced knowledge of specific meteorological areas including physical climatology, numerical weather prediction, severe weather, statistical techniques, thermodynamics, and others

5. EFFECTIVE DATE

Fall 2018

6. CONTACT PERSON

Dr. Kathleen Sherman-Morris
kms5@msstate.edu
662-268-1032 x242

7. SUPPORT

A letter of support from the Department of Geosciences curriculum committee.

MISSISSIPPI STATE
UNIVERSITY

Department of Geosciences
108 Hilbun Hall
355 Lee Blvd
PO Box 5448
Mississippi State, MS 39762
Phone (662) 325-3915
FAX (662) 325-9423

October 27, 2017

College of Arts and Sciences and the University Courses and Curriculum Committees

Mississippi State University

RE: Certificate Modification for the Broadcast Meteorology Certificate and the Operational Meteorology Certificate

Dear Curriculum Committee,

The Department of Geosciences Curriculum Committee has met and discussed the adoption of the proposed changes to the Broadcast Meteorology Certificate and the Operational Meteorology Certificate in our distance learning programs. We agree that these changes make the certificate programs align more strongly with our proposed degree modification and fully support their adoption. If you have any questions, please do not hesitate to contact me.

Respectfully,

Andrew Mercer (Committee Chair)

Kathleen Sherman-Morris (Committee Member)

Rinat Gabitov (Committee Member)

Shrinidhi Ambinakudige (Committee Member)

Cc: Dr. John C. Rodgers, Interim Department Head of Geosciences

APPROVAL FORM FOR

DEGREE PROGRAMS

MISSISSIPPI STATE UNIVERSITY

NOTE: This form is a cover sheet that must accompany the degree program change proposal. The actual proposal should be prepared in accordance with format requirements provided in the *Guide and Format for Curriculum Proposals* published by the UCCC. Both cover sheet and proposal should be submitted to UCCC Mail Stop 9702 (281 Garner Hall), Phone: 325-9410.

College: Business **Department: Deans Office**
Contact Person: Kevin Rogers **Mail Stop: 9288** **E-mail: kevin.rogers@msstate.edu**
Nature of Change: AOCE Approval **Date Initiated: 1/09/18** **Effective Date: 8/01/18**
Current Degree Program Name: Bachelor of Business Administration
Major: Business Administration **Concentration: n/a**

Summary of Proposed Changes:
Students in this program will have the option to complete the 49 hours of junior/senior business courses required for the degree, all as distance courses:
BQA 3123
BIS 3233
FIN 3113
FIN 3123
MKT 3013
MGT 3114
MGT 3213
BUS 4853
Major electives (24 hours)

Approved:	**Date:**
Ken Rogers	2/20/18
Department Head	
Jaren Mark	2/21/18
Chair, College or School Curriculum Committee	
Dean Oswald	3-1-18
Dean of College or School	
Chair, University Committee on Courses and Curricula	
Chair, Deans Council	

1. CATALOG DESCRIPTION

The curriculum in Business Administration is designed for students who desire a general rather than a specialized program in business. BUAD advisors are located in the COB Academic Advising Center. Students are encouraged to make appointments with advisors, as they are not always available on a walk-in basis.

Business Administration majors must complete 12 hours from one major area and 6 hours from two additional major areas selected from the list below, for a total of 24 hours.

- Accounting
- Insurance
- Marketing
- Real Estate
- Management
- Economics
- Information Systems
- Finance
- International Business
- Legal Environ of Business
- Supply Chain Management

Distance Education: The Business Administration major can be completed at MSU through distance education. Additional instructional support and distance fees also apply. For current Distance Education fees, see http://www.controller.msstate.edu/accountservices/tuition/.

2. CURRICULUM OUTLINE

CURRICULUM OUTLINE **(* denotes business course offered via distance)**	Required Hours
English EN 1103 or EN 1163 EN 1113 or EN 1173	6
Mathematics MA 1313 MA 1613 BQA 2113	9
Science 2 Lab Sciences from General Education courses	6
Humanities See General Education courses	6
Fine Arts See General Education courses	3
Social/Behavioral Sciences PS 1113 Choose one from General Education courses excluding AEC and EC	6

College Core BQA 3123* ACC 2013* ACC 2023* EC 2113* EC 2123* BL 2413 BIS 3233* FIN 3113* FIN 3123* MKT 3013* MGT 3114* BUS 4853* Oral Communication Requirement CO 1003 or CO 1013 Computer Literacy Requirement BIS 1012 Writing requirement MGT 3213*	45
Major Core International Elective Select three areas of concentration from the following prefixes:[1] ACC, BIS, BL, EC, FIN, IB, INS, MGT, MKT, REF 1st Major Area (12 hours)* 2nd Major Area (6 hours)* 3rd Major Area (6 hours)* Non-business electives Free electives [1] Courses must be 3000-level or higher	 3 24 13 3
Total Hours	124

The curriculum will be the same for campus 1, campus 2, and campus 5 students. Upon implementation, the MSU College of Business will deliver the junior and senior level business courses via distance. Selected freshman and sophomore business courses will be offered via distance at MSU. There are no on campus requirements for students completing the curriculum via campus 5.

3. JUSTIFICATION FOR DISTANCE LEARNING OFFERING

The College of Business plans to focus on offering the junior/senior courses in the curriculum via distance. The general education and freshman/sophomore business courses are also available online at community colleges and other universities. The BBA in Business Administration requires 49 hours of junior/senior business coursework (25 from the college core and 24 from the major core). Currently, the College of Business offers 24 of these hours via distance at least once per year. The other 25 hours have either been approved or are in process of being approved for campus 5 delivery. Once the distance BBA is launched, the 49 hours of junior/senior business courses will be offered on a rotation such that a part-time distance student could

complete requirements over a 3 year period. While the general education and selected freshman/sophomore business courses are offered via distance at MSU, it is expected that the target audience will complete these courses at other institutions.

TARGET AUDIENCE

The primary market for the online BBA is comprised of non-MSU students in Mississippi and the region, who are looking to earn a business degree part-time. Currently, the only option for students interested in an online business degree at MSU is a12-18 hour business emphasis under the B.S. in Interdisciplinary Studies. Offering the BBA through distance will provide a more recognizable business degree, accredited by AACSB International.

A secondary market will be current and former MSU business students that no longer live in commuting distance to Starkville or Meridian campuses. Offering the BBA through distance, will give these students a path to complete their business degree from MSU.

Current business students on the Starkville and Meridian campuses are not the target audience for the distance BBA. The full program will continue to be offered face-to-face on both campuses. With the permission of the department offering the course, campus 1 and 5 students will be allowed to enroll in distance courses.

4. LEARNING OUTCOMES

The BBA in Business Administration will have the same learning outcomes across campus 1, 2 and 5:

- Students will be able to critically analyze and interpret information to solve problems and make business decisions
- Students will demonstrate proficiency in written communication skills
- Students will understand the impact of a demographically and culturally diverse business environment

5. EFFECTIVE DATE

August 2018

6. CONTACT PERSON

Kevin Rogers
325-1982
kevin.rogers@msstate.edu

7. LETTER OF SUPPORT

See attached

Appendix 10: Report of Intent to Offer an Existing Degree Program by Distance Learning
(Submit Appendix 10 in both PDF and Word Document Formats)

Institution: Mississippi State University

Date of Initial Program Approval:	Date of Implementation:	Cost of Implementation:
1981	August, 2018	$40,000 (offset by distance fees)

Program Title as Appears on Academic Program Inventory, Diploma, and Transcript:	Six Digit CIP Code:
Business Administration	52.0201

Degree(s) to be Awarded:	Credit Hour Requirements:
Bachelor of Business Administration	124

Percentage of Program Completed by Distance Learning:	Percentage of Program Requiring Campus Visit:
100%	0%

Will students be allowed to mix on-campus and distance learning courses within this program?	Yes
Will this program require separate admission from those offered on-campus?	No
Will this program have different fees or tuition rates from those offered on-campus?	Yes

Responsible Academic Unit(s):	Institutional Contact:
College of Business	Kevin Rogers, Associate Dean

Number of Students Expected to Enroll in First Six Years:		Number of Graduates Expected in First Six Years:	
Year One	20	Year One	0
Year Two	20	Year Two	15
Year Three	40	Year Three	20
Year Four	40	Year Four	35
Year Five	40	Year Five	35
Year Six	40	Year Six	35
Total	200	Total	140

Program Summary: The Bachelor of Business Administration (BBA) degree with a major in business administration will be offered via distance. Students can complete freshman and sophomore courses via Mississippi Community Colleges (62 hours). Forty-nine hours of junior and senior business courses will be offered over a two year period at MSU. Other MSU distance courses will be used to complete the remaining 13 hours of free electives to obtain 62 hours from MSU. Once completed, students will have the 124 hours required for the BBA.

Chief Academic Officer Signature _____ Date _____

Institutional Executive Officer Signature _____ Date _____

Rogers, Kevin

From: Ryan, Peter
Sent: Wednesday, November 15, 2017 5:01 PM
To: Rogers, Kevin; Jayroe, Teresa; Willard, Scott; Rader, Nicole
Cc: Oswald, Sharon; Travis, Rick; Blackbourn, Richard; Hopper, George; Seal, Susan; Pearson, Allison; Bonner, Judy
Subject: RE: Approval to launch programs by Distance Education
Attachments: Appendix 10 for IHL approval in November.pdf

Good afternoon Nicole, Terry, Kevin, Scott,

Dr. Bonner asked me to inform you to proceed with the launching the following degree programs by distance education:

Bachelor of Science in Industrial Technology
Bachelor of Business Administration
Master of Science in Education Leadership – Concentration in School Administration
Master of Science in Technology
Master of Agribusiness
Master of Professional Accountancy
Master of Taxation

If you have any questions, please do not hesitate to contact me.

Respectfully,
Peter

Peter Ryan, Ph.D., Professor
Associate Provost for Academic Affairs
Office of the Provost and Executive Vice President
Mississippi State University
3501 Lee Hall
P.O. Box BQ
Mississippi State, MS 39762
662-325-0730
662-325-4039 (fax)

MISSISSIPPI STATE UNIVERSITY

COLLEGE OF BUSINESS
Office of the Dean

P.O. Box 5288
114 McCool Hall
Mississippi State, MS 39762

P. 662.325.2580
F. 662.325.2410
www.business.msstate.edu

Date: February 21, 2018

To: University Committee on Courses and Curricula

From: College of Business Curriculum Committee

Subject: Letter of Support for the distance BBA – Business Administration major

We support the proposal to allow the BBA – Business Administration major as a distance program.

Faculty:	Support	Do not support
Randall Campbell, Professor of Economics	✓	
Laura Marler, Associate Professor of Management	✓	
Rob Moore, Professor of Marketing	✓	
Brad Trinkle, Associate Professor of Accounting	✓	
Carlton Young, Associate Professor of Healthcare Administration		

Rogers, Kevin

From: Young, Carlton
Sent: Wednesday, February 21, 2018 11:31 AM
To: Rogers, Kevin
Subject: RE: letter of support

No problem, Kevin.
I agree with the Committee's position, and support the proposal.

Hope all is well with you.
Carlton

Carlton C. Young, JD, Ph.D.
Associate Professor of Healthcare Administration
College of Business
Mississippi State University, Riley Campus
2212 5th Street, #309, Robert B. Deen Jr. Building
Meridian, MS 39301
(601) 484-0212
cyoung@meridian.msstate.edu
http://www.msstate.edu/our-people/2010/01/carlton-young/

From: Rogers, Kevin
Sent: Wednesday, February 21, 2018 11:24 AM
To: Young, Carlton <CYoung@meridian.msstate.edu>
Subject: letter of support

Carlton,
I am sorry you were not able to call in. I tested the number earlier, but something must of happened.

For the distance BBA proposal, there is no department faculty for the letter of support, so the committee signed the letter to add to the proposal. Can you either sign the attached and scan back to me? Or you can also just respond to this email that you support, or don't support the proposal, and I will attach that.

Thanks,
Kevin

Kevin E. Rogers, Ph.D.
Associate Dean and Professor
College of Business
Mississippi State University
PO Box 5288
Mississippi State, MS 39762
662-325-2580

APPROVAL FORM FOR

DEGREE PROGRAMS

MISSISSIPPI STATE UNIVERSITY

NOTE: This form is a cover sheet that must accompany the degree program change proposal. The actual proposal should be prepared in accordance with format requirements provided in the *Guide and Format for Curriculum Proposals* published by the UCCC. Both cover sheet and proposal should be submitted to UCCC Mail Stop 9702 (281 Garner Hall), Phone: 325-9410.

College: Business Department: Marketing, Quantitative Analysis, and Business Law

Contact Person: Stephen L. France Mail Stop: 9582
E-mail: sfrance@business.msstate.edu

Nature of Change: Add Minor Date Initiated: 01/31/2018 Effective Date: Fall 2018
Current Degree Program Name: NA

Major: Concentration:

New Degree Program Name: Minor in Business Analytics

Major: n/a Concentration: n/a

Summary of Proposed Changes:
Create a minor consisting of the following courses.

Analytics Skills (choose 3 out of 4)	Class Name
BQA 4413/6413	Business Forecasting and Predictive Analytics
BQA 4423/6423 (proposed)	Business Decision Analysis
ECON 4643/6643	Econ Forecasting & Analysis
BIS 3753	Business Database Systems

Analytics Applications (choose 2 out of 4)	Class Name
ACC 3003	Accounting Systems I
ACC 3053	Accounting Systems II
BIS 4533	Decision Support Systems
MKT 4033	International Transportation
MKT 4333	International Supply Chain Management
MKT 4533	Marketing Research

Approved:	Date:
Department Head	3-5-18
Chair, College or School Curriculum Committee	3/5/18
Dean of College or School	3/5/18
Chair, University Committee on Courses and Curricula	
Chair, Graduate Council(if applicable)	
Chair, Deans Council	

New Minor Proposal
Minor in Business Analytics

1. CATALOG DESCRIPTION

   See below

2. CURRICULUM OUTLINE

   The course BQA 4423/6423 (Business Decision Analysis) has been proposed for the Business Analytics minor in conjunction with the minor proposal.

PROPOSED NEW DEGREE DESCRIPTION	
Minor: Business Analytics The minor will provide students with both an appreciation of the use of analytic techniques in business and the practical skills to implement and understand these techniques. Students completing the minor will obtain a range of real world technical skills, such as using R, SAS, Tableau, and Excel. They will also gain insight into a wide range of business problems and scenarios. A specific niche/competitive advantage of this program is that students will be introduced to a range of software, such as widely used free analytics software (e.g., R). The minor will give commercially useful skills to many existing business students, such as those in accounting, business administration, business information systems, business economics, finance, and marketing. It also will provide business analytic skills for many non-business majors in areas such as computer science, engineering, mathematics, and psychology.	
PROPOSED CURRICULUM OUTLINE	**Required Hours**
Analytics Skills (choose 3 out of 4)	9
BQA 4413/6413 Business Forecasting and Predictive Analytics	
BQA 4423/6423 Business Decision Analysis	
ECON 4643/6643 Econ Forecasting & Analysis	
BIS 3753 Business Database Systems	
Analytics Applications (choose 2 out of 4)	6
ACC 3003 Accounting Systems I	
ACC 3053 Accounting Systems II	
BIS 4533 Decision Support Systems	
MKT 4033 International Transportation	
MKT 4333 International Supply Chain Management	
MKT 4533 Marketing Research	
Total Hours	15

3. STUDENT LEARNING OUTCOMES AND ASSESSMENT

Justification and Rationale: The use of analytic techniques in business has exploded over the last five to ten years. Businesses have been swamped with data from customer databases, web-logs, social media, on-line reviews, and many other sources. This phenomenon is sometimes called the information explosion. There is a huge demand for professionals who can make sense of this mass of data. In fact, a report by the consultancy company McKinsey estimated a shortage of 140,000 to 190,000 data science/analytics practitioners with advanced quantitative skills and a shortage of 1.5 million managers and business analysts who have the ability to understand the analyses produced by the data science practitioners.

As analytics has become more important to the business environment, there is a need for managers who can work with technical staff and can understand analyses. For example, as the business analytics environment has matured, the ability to understand analytics technologies and business intelligence systems has become imperative for information systems employees. The growth of smartphone, web, and social media data has made analytics an important part of marketing. Accounting is moving from being report-based to more data analytics-based.

Students completing the Business Analytics Minor will be able to:

- Demonstrate the appropriate and informed use of a range of analysis software, such as R, SAS, Tableau, or the advanced features of Excel.
- Discuss how data is used for business strategy in a range of business areas, such as accounting, information systems, finance, human resources, and marketing.
- Discuss which business scenarios require the use of analytic techniques and how to apply analytics techniques to these areas.
- Utilize basic data manipulation and cleaning skills prior to analysis.
- Build quantitative models using data analysis software.
- Evaluate the performance and iteratively improve analytics models.
- Explain the output from analytics software and interpret the results.
- Produce managerial summaries of analyses suitable for business decision makers.
- Discuss analyses in a parsimonious fashion, such as would be used in business talks and presentations.
- Discuss the importance of continuous learning of new skills and technologies in an analytics career. Outline a plan to hone existing skills and gain new skills.

4. SUPPORT
See attached

5. PROPOSED 4-LETTER ABBREVIATION
BSA

6. PROPOSED SEMESTER EFFECTIVE
Fall 2018

To: University Committee on Courses and Curricula

From: BQA Faculty, Marketing, Quantitative Analysis and Business Law Department

Date: January 30, 2018

The Business Quantitative Analysis faculty and School of Business department heads have reviewed the proposal for the Undergraduate Minor in Business Analytics. This minor complements the recently added Graduate Minor in Business Analytics. The minor will give commercially useful skills to many existing business students, such as those in accounting, business administration, business information systems, business economics, finance, and marketing.

We support this proposal and appreciate your consideration of it. If you have any questions, or need any additional information, please contact Dr. Stephen France at sfrance@business.msstate.edu.

Dr. Melissa Moore, Marketing, Quantitative Analysis, and Business Law Department Head

Dr. Stephen L. France, Assistant Professor, Business Quantitative Analysis

Dr. Xinchang Wang, Assistant Professor, Business Quantitative Analysis

Dr. Michael J. Highfield, Finance and Economics, Department Head

Dr. Shawn Mauldin, Adkerson School of Accountancy, Department Head

Dr. James Chrisman, Management and Information Systems, Department Head

APPROVAL FORM FOR

DEGREE PROGRAMS

MISSISSIPPI STATE UNIVERSITY

NOTE: This form is a cover sheet that must accompany the degree program change proposal. The actual proposal should be prepared in accordance with format requirements provided in the *Guide and Format for Curriculum Proposals* published by the UCCC. Both cover sheet and proposal should be submitted to UCCC Mail Stop 9702 (281 Garner Hall), Phone: 325-9410.

College: Bagley College of Engineering **Department:** Electrical & Computer Engineering

Contact Person: JW Bruce **Mail Stop:** 9571 **E-mail:** *jwbruce@ece.msstate.edu*
Nature of Change: modify graduation GPA requirements
Date Initiated: 1 Feburary 2018 **Effective Date:** Fall 2018
Current Degree Program Name: Bachelor of Science in Computer Engineering

Major: Computer Engineering **Concentration:**

New Degree Program Name:

Major: **Concentration:**

Summary of Proposed Changes:

The Mississippi State University GPA requirements for graduation listed in AOP 12.11 are

- make an overall C average on all hours scheduled and rescheduled at all institutions attended, including MSU (2.00 or better Cumulative GPA)
- make a C average on all hours scheduled and rescheduled at MSU (2.00 or better MSU GPA)

The proposed modification to BSCPE degree will further require that students

- earn at least a 2.5/4.0 average on all hours with ECE or CSE course prefixes scheduled and rescheduled at all institutions attended, including MSU

Approved: **Date:**

Approved	Date
Nicolas Youman **Department Head**	12/15/17
[signature] **Chair, College or School Curriculum Committee**	3/5/18
[signature] **Dean of College or School**	3/7/18
Chair, University Committee on Courses and Curricula	
Chair, Graduate Council(if applicable)	
Chair, Deans Council	

PROPOSAL FOR THE MODIFICATION OF THE
B.S. IN COMPUTER ENGINEERING

1. CATALOG DESCRIPTION

No changes proposed

2. CURRICULUM OUTLINE

Summary of changes

- Remove the program-specific graduation GPA requirement "make a C average on all hours scheduled and rescheduled at MSU which apply to the CPE curriculum (2.00 or better MSU degree average)"
- Change the program-specific graduation GPA requirement "make a C average on all ECE courses and all CSE courses scheduled and rescheduled at MSU which apply to the CPE curriculum (2.00 or better MSU ECE and CSE course average)" to "earn at least a 2.5/4.0 average on all hours with ECE or CSE course prefixes scheduled and rescheduled at all institutions attended, including MSU"

CURRENT Degree Description	PROPOSED Degree Description
Degree: Bachelor of Science in Computer Engineering Major: Computer Engineering Concentration:	Degree: Bachelor or Science in Computer Engineering Major: Computer Engineering Concentration:
Alumni, employers, faculty and students participate in a process used to develop educational objectives for the undergraduate programs in Electrical Engineering and Computer Engineering. Within a few years of graduation, program graduates completing the baccalaureate degree in Electrical or Computer Engineering will: • Be recognized by their peers as fundamentally sound in the application of mathematics, science, computing, and engineering. • Be engaged in the practice of Electrical or Computer Engineering as innovative problem solvers with a strong work ethic, by identifying and implementing solutions using the proper tools, practical approaches, and flexible thinking. • Be productive and demonstrate leadership in the practice of Electrical or Computer Engineering, both individually and within multidisciplinary teams, using effective oral and written communication skills when working with peers, supervisors, and the public.	Alumni, employers, faculty and students participate in a process used to develop educational objectives for the undergraduate programs in Electrical Engineering and Computer Engineering. Within a few years of graduation, program graduates completing the baccalaureate degree in Electrical or Computer Engineering will: • Be recognized by their peers as fundamentally sound in the application of mathematics, science, computing, and engineering. • Be engaged in the practice of Electrical or Computer Engineering as innovative problem solvers with a strong work ethic, by identifying and implementing solutions using the proper tools, practical approaches, and flexible thinking. • Be productive and demonstrate leadership in the practice of Electrical or Computer Engineering, both individually and within multidisciplinary teams, using effective oral and written communication skills when working with peers, supervisors, and the public.

• Be responsible in the practice of Electrical or Computer Engineering, relying on sound engineering ethics, a commitment to lifelong learning and a genuine concern for society and the environment.	• Be responsible in the practice of Electrical or Computer Engineering, relying on sound engineering ethics, a commitment to lifelong learning and a genuine concern for society and the environment.
With the origin of the modern computer dating back to the late 1940's and the growth of computer hardware fueled by the availability of digital integrated circuits starting in the late 1960's, computer engineers have enjoyed a pivotal role in technology that now permeates our entire society. Whether the end product is an integrated circuit, a system of networked embedded computers, or any system that relies on digital hardware or computer software, its development requires the skills of a computer engineer. While computing systems include both hardware and software, it is the optimal combination of these components that is the unique realm of the computer engineer. Today, computer engineers are a driving force in the technological and economic development of the digital age.	With the origin of the modern computer dating back to the late 1940's and the growth of computer hardware fueled by the availability of digital integrated circuits starting in the late 1960's, computer engineers have enjoyed a pivotal role in technology that now permeates our entire society. Whether the end product is an integrated circuit, a system of networked embedded computers, or any system that relies on digital hardware or computer software, its development requires the skills of a computer engineer. While computing systems include both hardware and software, it is the optimal combination of these components that is the unique realm of the computer engineer. Today, computer engineers are a driving force in the technological and economic development of the digital age.
The curriculum requirements for computer engineering are built around a substantial engineering core curriculum and required courses in electrical engineering and computer science. The requirements in mathematics, the basic sciences, and engineering sciences provide the breadth of exposure required for all engineering disciplines. Basic electrical engineering requirements include circuit theory, electronics and digital devices which are supplemented by upper-level courses in computer architecture, and computer aided design of digital systems. Basic computer science courses include a coordinated sequence providing fundamental knowledge in data structures, algorithms, object oriented programming, software engineering, real-time application and software development tools. These courses are developed across multiple platforms and are based on the Python and Java language. Upper-level courses in data communications and computer networks, algorithms and operating systems are also provided. Students wishing to gain depth of coverage in communications, parallel computing, VLSI, embedded systems or signal processing can achieve this with the availability of technical electives selected from an approved list or in consultation with a faculty advisor. Required courses in communications skills, social	The curriculum requirements for computer engineering are built around a substantial engineering core curriculum and required courses in electrical engineering and computer science. The requirements in mathematics, the basic sciences, and engineering sciences provide the breadth of exposure required for all engineering disciplines. Basic electrical engineering requirements include circuit theory, electronics and digital devices which are supplemented by upper-level courses in computer architecture, and computer aided design of digital systems. Basic computer science courses include a coordinated sequence providing fundamental knowledge in data structures, algorithms, object oriented programming, software engineering, real-time application and software development tools. These courses are developed across multiple platforms and are based on the Python and Java language. Upper-level courses in data communications and computer networks, algorithms and operating systems are also provided. Students wishing to gain depth of coverage in communications, parallel computing, VLSI, embedded systems or signal processing can achieve this with the availability of technical electives selected from an approved list or in consultation with a faculty advisor. Required courses in communications skills, social

sciences and humanities provide studies in non-technical areas that are traditional in a broad-based education. A capstone senior design course requires students to apply newfound knowledge and explore entrepreneurship. Students research and identify a problem and work in teams applying a combination of hardware and software to develop a solution. Critical and Final Design Reviews enable students to develop their professional presentation skills. The computer engineering program is accredited by the Engineering Accreditation Commission of ABET, http://www.abet.org. This program is offered through joint efforts of faculty in the Department of Electrical and Computer Engineering and the Department of Computer Science and Engineering.	sciences and humanities provide studies in non-technical areas that are traditional in a broad-based education. A capstone senior design course requires students to apply newfound knowledge and explore entrepreneurship. Students research and identify a problem and work in teams applying a combination of hardware and software to develop a solution. Critical and Final Design Reviews enable students to develop their professional presentation skills. **GPA requirements for graduation** **Students expecting to graduate from Mississippi State University with a bachelor of science degree in computer engineering, in addition to satisfactorily completing the CPE curriculum requirements, must meet the following minimum GPA requirements for graduation:** • **make an overall C average on all hours scheduled and rescheduled at all institutions attended, including MSU (2.00 or better Cumulative GPA)** • **make a C average on all hours scheduled and rescheduled at MSU (2.00 or better MSU GPA)** • **earn at least a 2.5/4.0 average on all hours with ECE or CSE course prefixes scheduled and rescheduled at all institutions attended, including MSU** The computer engineering program is accredited by the Engineering Accreditation Commission of ABET, http://www.abet.org. This program is offered through joint efforts of faculty in the Department of Electrical and Computer Engineering and the Department of Computer Science and Engineering.
[Click here and type old concentration description]	[Click here and type new concentration description]

CURRENT CURRICULUM OUTLINE	Required Hours	**PROPOSED CURRICULUM OUTLINE**	Required Hours
EN 1103 English Composition I or EN	6	EN 1103 English Composition I or EN	6

1163 Accelerated Composition I EN 1113 English Composition II or EN 1173 Accelerated Composition II		1163 Accelerated Composition I EN 1113 English Composition II or EN 1173 Accelerated Composition II	
Fine Arts see General Education courses	3	Fine Arts see General Education courses	3
Natural Sciences see Major Core		Natural Sciences see Major Core	
Math see Major Core		Math see Major Core	
Humanities see General Education coures	6	Humanities see General Education coures	6
Social/Behavioral Sciences see General Education courses	6	Social/Behavioral Sciences see General Education courses	6
Major Core Courses		Major Core Courses	
Math and Basic Science (31h)		Math and Basic Science (31h)	
MA 1713 Calculus I	3	MA 1713 Calculus I	3
MA 1723 Calculus II	3	MA 1723 Calculus II	3
MA 2733 Calculus III	3	MA 2733 Calculus III	3
MA 2743 Calculus IV	3	MA 2743 Calculus IV	3
MA 3113 Intro to Linear Algebra	3	MA 3113 Intro to Linear Algebra	3
MA 3253 Differential Equations I	3	MA 3253 Differential Equations I	3
IE 4613 Engineering Statistics I	3	IE 4613 Engineering Statistics I	3
CH 1213 Chemistry I	3	CH 1213 Chemistry I	3
CH 1211 Invest. in Chemistry I	1	CH 1211 Invest. in Chemistry I	1
PH 2213 Physics I	3	PH 2213 Physics I	3
PH 2223 Physics II	3	PH 2223 Physics II	3
Engineering Topics (70h)		Engineering Topics (70h)	
CSE 1284 Introduction to Computer Programming	4	CSE 1284 Introduction to Computer Programming	4
CSE 1384 Intermediate Computer Programming	4	CSE 1384 Intermediate Computer Programming	4
CSE 2383 Data Structures and Analysis of Algorithms	3	CSE 2383 Data Structures and Analysis of Algorithms	3
CSE 2813 Discrete Structures	3	CSE 2813 Discrete Structures	3
CSE 3324 Distributed Client/Server Programming	4	CSE 3324 Distributed Client/Server Programming	4
CSE 4733 Operating Systems I	3	CSE 4733 Operating Systems I	3
CSE 4833 Intro Analysis of Algorithms	3	CSE 4833 Intro Analysis of Algorithms	3
ECE 1002 Introduction to Electrical & Computer Engineering	2	ECE 1002 Introduction to Electrical & Computer Engineering	2
ECE 3413 Introduction to Electronic Circuits	3	ECE 3413 Introduction to Electronic Circuits	3
ECE 3424 Intermediate Electronic Circuits	4	ECE 3424 Intermediate Electronic Circuits	4

ECE 3434 Advanced Electronic Circuits	4	ECE 3434 Advanced Electronic Circuits	4
ECE 3443 Signals and Systems	3	ECE 3443 Signals and Systems	3
ECE 3714 Digital Devices and Logic Design	4	ECE 3714 Digital Devices and Logic Design	4
ECE 3724 Microprocessors	4	ECE 3724 Microprocessors	4
ECE 4723 Embedded Systems or ECE 4263 Principles of VLSI Design	3	ECE 4723 Embedded Systems or ECE 4263 Principles of VLSI Design	3
ECE 4512 CPE Design I	2	ECE 4512 CPE Design I	2
ECE 4522 CPE Design II	2	ECE 4522 CPE Design II	2
ECE 4713 Computer Architecture	3	ECE 4713 Computer Architecture	3
ECE 4743 Digital System Design	3	ECE 4743 Digital System Design	3
ECE 4833 Data Communications and Computer Networks	3	ECE 4833 Data Communications and Computer Networks	3
CPE technical electives (6h)	6	CPE technical electives (6h)	6
Oral Communication Requirement CO 1003 Fundamentals of Public Speaking or CO 1013 Introduction to Communication	3	Oral Communication Requirement CO 1003 Fundamentals of Public Speaking or CO 1013 Introduction to Communication	3
Writing Requirement GE 3513 Technical Writing	3	Writing Requirement GE 3513 Technical Writing	3
Computer Literacy Fulfilled in Engineering Topics courses		Computer Literacy Fulfilled in Engineering Topics courses	
Concentration Courses		Concentration Courses	
Total Hours	128	Total Hours	128

3. JUSTIFICATION AND STUDENT LEARNING OUTCOMES

There are no changes in the student learning outcomes

The BS in Computer Engineering has for the last twenty years imposed GPA requirements on its graduates beyond those required by MSU in AOP12.11. The GPA requirements are listed on the Department of Electrical & Computer Engineering website as

> *Students expecting to graduate from Mississippi State University with a Bachelor of Science degree in Computer Engineering, in addition to satisfactorily completing the CPE curriculum requirements, must meet the following minimum GPA requirements for graduation:*
>
> - *make an overall C average on all hours scheduled and rescheduled at all institutions attended, including MSU (2.00 or better Cumulative GPA)*
> - *make a C average on all hours scheduled and rescheduled at MSU (2.00 or better MSU GPA)*
> - *make a C average on all hours scheduled and rescheduled at MSU which apply to the CPE*

curriculum (2.00 or better MSU degree average)

- *make a C average on all ECE courses and all CSE courses scheduled and rescheduled at MSU which apply to the CPE curriculum (2.00 or better MSU ECE and CSE course avera*ge)

The first two requirements are University requirements on undergraduate degrees in AOP 12.11. The last two requirements are CPE program GPA requirements. It is difficult to calculate these CPE program GPA requirements for staff in degree audits. Furthermore, the calculation of these two program of study GPA requirements is difficult for students as they progress through the program. Thus, students are often not aware when their academic performance falls below these requirements until they are alerted to the fact during a preliminary degree audit in the penultimate semester. The faculty desire program of study GPA requirements that are (1) easy to calculate, and (2) easily monitored by students earlier and more often.

This proposal is to change the GPA requirements for the BS in Computer Engineering degree to

> *Students expecting to graduate from Mississippi State University with a Bachelor of Science degree in Computer Engineering, in addition to satisfactorily completing the CPE curriculum requirements, must meet the following minimum GPA requirements for graduation:*
>
> - *make an overall C average on all hours scheduled and rescheduled at all institutions attended, including MSU (2.00 or better Cumulative GPA)*
> - *make a C average on all hours scheduled and rescheduled at MSU (2.00 or better MSU GPA)*
> - *earn at least a 2.5/4.0 average on all hours with ECE or CSE course prefixes scheduled and rescheduled at all institutions attended, including MSU*

The first two requirements remain the University requirements for graduation from undergraduate program detailed in AOP 12.11. The third graduation GPA requirements is easily codified into the CAPP compliance report. With CAPP calculation of the student's status toward the third requirement, the student and their adviser can be aware of the students status toward the degree's GPA requirements at all times. In the BSEE program, students are advised by a professional advisor before registration is allowed. As part of this every semester advising, the CPE program advisor goes over the CAPP report with the student. The proposed new GPA requirement will very visibly represented by the green bar (ECE or CSE hours average > 2.5) or red bar (ECE or CSE hours average < 2.5) in the CAPP report.

4. SUPPORT

See the attached letter from the faculty with oversight of BS CPE program

5. PROPOSED 4-LETTER ABBREVIATION

No changeover

6. EFFECTIVE DATE

Fall 2018

JAMES WORTH
BAGLEY
COLLEGE OF ENGINEERING
MISSISSIPPI STATE UNIVERSITY
ELECTRICAL & COMPUTER ENGINEERING
Box 9571
Mississippi State, MS 39762
Tel: (662) 325-3912 Fax: (662) 325-2298

4 December 2017

TO: James W. Bagley College of Engineering Committee on Courses and Curricula & Mississippi State University University Committee on Courses and Curricula

FROM: Undergraduate Committee, Department of Electrical & Computer Engineering

RE: Degree modification for the BS in Computer Engineering

The Undergraduate Committee of the Department of Electrical & Computer Engineering has reviewed the application for the proposed degree modification for the BS in Computer Engineering. After doing so, the Undergraduate Committee recommended and the ECE faculty unanimously approved the degree modifications at an ECE faculty meeting held on 10 November 2017.

We offer the full support of the proposed degree modifications.

Nicolas Younan, ECE Department Head

Ed Swan, CSE Interim Department Head

J.W. Bruce, Undergraduate Committee Chair

J. Patrick Donohoe

Randy Follett

Masoud Karimi

Mehmet Kurum

Jean Mohammadi-Aragh

Lokesh Shivakumaraiah

APPROVAL FORM FOR

DEGREE PROGRAMS

MISSISSIPPI STATE UNIVERSITY

NOTE: This form is a cover sheet that must accompany the degree program change proposal. The actual proposal should be prepared in accordance with format requirements provided in the *Guide and Format for Curriculum Proposals* published by the UCCC. Both cover sheet and proposal should be submitted to UCCC Mail Stop 9702 (281 Garner Hall), Phone: 325-9410.

College: Bagley College of Engineering **Department:** Electrical & Computer Engineering

Contact Person: JW Bruce **Mail Stop:** 9571 **E-mail:** *jwbruce@ece.msstate.edu*
Nature of Change: modify graduation GPA requirements
Date Initiated: 1 Feburary 2018 **Effective Date:** Fall 2018
Current Degree Program Name: Bachelor of Science in Electrical Engineering

Major: Electrical Engineering **Concentration:**

New Degree Program Name:

Major: **Concentration:**

Summary of Proposed Changes:

The Mississippi State University GPA requirements for graduation listed in AOP 12.11 are

- make an overall C average on all hours scheduled and rescheduled at all institutions attended, including MSU (2.00 or better Cumulative GPA)
- make a C average on all hours scheduled and rescheduled at MSU (2.00 or better MSU GPA)

The proposed modification to BSEE degree will further require that students

- earn at least a 2.5/4.0 average on all hours with ECE or CSE course prefixes scheduled and rescheduled at all institutions attended, including MSU

Approved:	Date:
Department Head	12/15/17
Chair, College or School Curriculum Committee	3/5/18
Dean of College or School	3/7/18
Chair, University Committee on Courses and Curricula	
Chair, Graduate Council(if applicable)	
Chair, Deans Council	

PROPOSAL FOR THE MODIFICATION OF THE
B.S. IN ELECTRICAL ENGINEERING

1. CATALOG DESCRIPTION

No changes proposed

2. CURRICULUM OUTLINE

Summary of changes

- Remove the program-specific graduation GPA requirement "make a C average on all hours scheduled and rescheduled at MSU which apply to the EE curriculum (2.00 or better MSU degree average)"
- Change the program-specific graduation GPA requirement "make a C average on all ECE courses and all CSE courses scheduled and rescheduled at MSU which apply to the EE curriculum (2.00 or better MSU ECE and CSE course average)" to "earn at least a 2.5/4.0 average on all hours with ECE or CSE course prefixes scheduled and rescheduled at all institutions attended, including MSU"

CURRENT Degree Description	PROPOSED Degree Description
Degree: Bachelor of Science in Electrical Engineering Major: Electrical Engineering Concentration:	Degree: Bachelor or Science in Electrical Engineering Major: Electrical Engineering Concentration:
Alumni, employers, faculty and students participate in a process used to develop educational objectives for the undergraduate programs in Electrical Engineering and Computer Engineering. Within a few years of graduation, program graduates completing the baccalaureate degree in Electrical or Computer Engineering will: • Be recognized by their peers as fundamentally sound in the application of mathematics, science, computing, and engineering. • Be engaged in the practice of Electrical or Computer Engineering as innovative problem solvers with a strong work ethic, by identifying and implementing solutions using the proper tools, practical approaches, and flexible thinking. • Be productive and demonstrate leadership in the practice of Electrical or Computer Engineering, both individually and within multidisciplinary teams, using effective oral and written communication skills when working with peers, supervisors, and the public.	Alumni, employers, faculty and students participate in a process used to develop educational objectives for the undergraduate programs in Electrical Engineering and Computer Engineering. Within a few years of graduation, program graduates completing the baccalaureate degree in Electrical or Computer Engineering will: • Be recognized by their peers as fundamentally sound in the application of mathematics, science, computing, and engineering. • Be engaged in the practice of Electrical or Computer Engineering as innovative problem solvers with a strong work ethic, by identifying and implementing solutions using the proper tools, practical approaches, and flexible thinking. • Be productive and demonstrate leadership in the practice of Electrical or Computer Engineering, both individually and within multidisciplinary teams, using effective oral and written communication skills when working with peers, supervisors, and the public.

• Be responsible in the practice of Electrical or Computer Engineering, relying on sound engineering ethics, a commitment to lifelong learning and a genuine concern for society and the environment.	• Be responsible in the practice of Electrical or Computer Engineering, relying on sound engineering ethics, a commitment to lifelong learning and a genuine concern for society and the environment.
The electrical engineer is a principal contributor to the modern technological age in which we live today. Following in the footsteps of inventors such as Thomas Edison and Alexander Graham Bell, the electrical engineer is developing technology that improves the quality of life. Developments in microelectronics, telecommunications, and power systems have had a profound effect on each of us. Electrical engineers have affected all segments of our society such as transportation, medicine, and the entertainment industry, to name only a few. Indeed, the electrical engineer has principally been responsible for the advent of the computer age in which we live today as well as the computer's miniaturization and rapid expansion in computational power.	The electrical engineer is a principal contributor to the modern technological age in which we live today. Following in the footsteps of inventors such as Thomas Edison and Alexander Graham Bell, the electrical engineer is developing technology that improves the quality of life. Developments in microelectronics, telecommunications, and power systems have had a profound effect on each of us. Electrical engineers have affected all segments of our society such as transportation, medicine, and the entertainment industry, to name only a few. Indeed, the electrical engineer has principally been responsible for the advent of the computer age in which we live today as well as the computer's miniaturization and rapid expansion in computational power.
The curriculum in electrical engineering has a foundation based on the principles of the electrical and physical sciences and uses mathematics as a common language to facilitate the solution of engineering problems. The core curriculum consists of a sequence of courses in digital devices, circuits and electronics, electromagnetic field theory, and modern energy conversion. In the senior year, students have the opportunity to take additional course work in one or more technical areas that include: telecommunications, electromagnetics, power systems, high voltage, feedback control systems, microelectronics, signal processing, and computer systems. Supporting course work outside electrical engineering consists of a strong background in mathematics, physical sciences, computer programming, social sciences, fine arts, humanities, and personal communication skills. Computers are used extensively throughout the curriculum, and students are expected to become proficient in higher-order programming languages and several application software tools. Although the concept of design is stressed throughout the program so as to emphasize the problem-solving skills of the engineer, the senior year includes a capstone design experience where much of the previous study is culminated. Through this two-	The curriculum in electrical engineering has a foundation based on the principles of the electrical and physical sciences and uses mathematics as a common language to facilitate the solution of engineering problems. The core curriculum consists of a sequence of courses in digital devices, circuits and electronics, electromagnetic field theory, and modern energy conversion. In the senior year, students have the opportunity to take additional course work in one or more technical areas that include: telecommunications, electromagnetics, power systems, high voltage, feedback control systems, microelectronics, signal processing, and computer systems. Supporting course work outside electrical engineering consists of a strong background in mathematics, physical sciences, computer programming, social sciences, fine arts, humanities, and personal communication skills. Computers are used extensively throughout the curriculum, and students are expected to become proficient in higher-order programming languages and several application software tools. Although the concept of design is stressed throughout the program so as to emphasize the problem-solving skills of the engineer, the senior year includes a capstone design experience where much of the previous study is culminated. Through this two-semester design course sequence, students are

semester design course sequence, students are required to integrate design and analytical problem-solving skills together with communication skills in a team environment. The electrical engineering program is accredited by the Engineering Accreditation Commission of ABET, http://www.abet.org.	required to integrate design and analytical problem-solving skills together with communication skills in a team environment. **GPA requirements for graduation** **Students expecting to graduate from Mississippi State University with a bachelor of science degree in Electrical Engineering, in addition to satisfactorily completing the EE curriculum requirements, must meet the following minimum GPA requirements for graduation:** • **make an overall C average on all hours scheduled and rescheduled at all institutions attended, including MSU (2.00 or better Cumulative GPA)** • **make a C average on all hours scheduled and rescheduled at MSU (2.00 or better MSU GPA)** • **earn at least a 2.5/4.0 average on all hours with ECE or CSE course prefixes scheduled and rescheduled at all institutions attended, including MSU** The electrical engineering program is accredited by the Engineering Accreditation Commission of ABET, http://www.abet.org.
[Click here and type old concentration description]	[Click here and type new concentration description]

CURRENT CURRICULUM OUTLINE	Required Hours	PROPOSED CURRICULUM OUTLINE	Required Hours
EN 1103 English Composition I or EN 1163 Accelerated Composition I EN 1113 English Composition II or EN 1173 Accelerated Composition II	6	EN 1103 English Composition I or EN 1163 Accelerated Composition I EN 1113 English Composition II or EN 1173 Accelerated Composition II	6
Fine Arts see General Education courses	3	Fine Arts see General Education courses	3
Natural Sciences see Major Core		Natural Sciences see Major Core	
Math see Major Core		Math see Major Core	

Humanities see General Education coures	6	Humanities see General Education coures	6
Social/Behavioral Sciences see General Education courses	6	Social/Behavioral Sciences see General Education courses	6
Major Core Courses		Major Core Courses	
Math and Basic Science (31h)		Math and Basic Science (31h)	
MA 1713 Calculus I	3	MA 1713 Calculus I	3
MA 1723 Calculus II	3	MA 1723 Calculus II	3
MA 2733 Calculus III	3	MA 2733 Calculus III	3
MA 2743 Calculus IV	3	MA 2743 Calculus IV	3
MA 3113 Intro to Linear Algebra	3	MA 3113 Intro to Linear Algebra	3
MA 3253 Differential Equations I	3	MA 3253 Differential Equations I	3
IE 4613 Engineering Statistics I	3	IE 4613 Engineering Statistics I	3
CH 1213 Chemistry I	3	CH 1213 Chemistry I	3
CH 1211 Invest. in Chemistry I	1	CH 1211 Invest. in Chemistry I	1
PH 2213 Physics I	3	PH 2213 Physics I	3
PH 2223 Physics II	3	PH 2223 Physics II	3
Engineering Topics (70h)		Engineering Topics (70h)	
CSE 1284 Introduction to Computer Programming	4	CSE 1284 Introduction to Computer Programming	4
CSE 1384 Intermediate Computer Programming	4	CSE 1384 Intermediate Computer Programming	4
CSE 2383 Data Structures and Analysis of Algorithms	3	CSE 2383 Data Structures and Analysis of Algorithms	3
ECE 1002 Introduction to Electrical & Computer Engineering	2	ECE 1002 Introduction to Electrical & Computer Engineering	2
ECE 3213 Introduction to Solid State Electronics	3	ECE 3213 Introduction to Solid State Electronics	3
ECE 3413 Introduction to Electronic Circuits	3	ECE 3413 Introduction to Electronic Circuits	3
ECE 3424 Intermediate Electronic Circuits	4	ECE 3424 Intermediate Electronic Circuits	4
ECE 3434 Advanced Electronic Circuits	4	ECE 3434 Advanced Electronic Circuits	4
ECE 3443 Signals and Systems	3	ECE 3443 Signals and Systems	3
ECE 3313 Electromagnetics I	3	ECE 3313 Electromagnetics I	3
ECE 3323 Electromagnetics II	3	ECE 3323 Electromagnetics II	3
ECE 3614 Fundamentals of Energy Systems	4	ECE 3614 Fundamentals of Energy Systems	4
ECE 4512 EE Design I	2	ECE 4512 EE Design I	2
ECE 4522 EE Design II	2	ECE 4522 EE Design II	2
ECE 3714 Digital Devices and Logic Design	4	ECE 3714 Digital Devices and Logic Design	4
ECE 3724 Microprocessors	4	ECE 3724 Microprocessors	4
EM 2413 Engineering Mechanics I or ME 3513 Thermodynamics I	3	EM 2413 Engineering Mechanics I or ME 3513 Thermodynamics I	3
EE technical electives (9h)	9	EE technical electives (9h)	9
Engineering Science elective (3h)	3	Engineering Science elective (3h)	3
Professional Enrichment elective (3h)	3	Professional Enrichment elective (3h)	3

Oral Communication Requirement CO 1003 Fundamentals of Public Speaking or CO 1013 Introduction to Communication Writing Requirement GE 3513 Technical Writing Computer Literacy Fulfilled in Engineering Topics courses	3 3	Oral Communication Requirement CO 1003 Fundamentals of Public Speaking or CO 1013 Introduction to Communication Writing Requirement GE 3513 Technical Writing Computer Literacy Fulfilled in Engineering Topics courses	3 3
Concentration Courses		Concentration Courses	
Total Hours	128	Total Hours	128

3. JUSTIFICATION AND STUDENT LEARNING OUTCOMES

There are no changes in the student learning outcomes

The BS in Electrical Engineering has for the last twenty years imposed GPA requirements on its graduates beyond those required by MSU in AOP12.11. The GPA requirements are listed on the Department of Electrical & Computer Engineering website as

> *Students expecting to graduate from Mississippi State University with a bachelor of science degree in Electrical Engineering, in addition to satisfactorily completing the EE curriculum requirements, must meet the following minimum GPA requirements for graduation:*
>
> - *make an overall C average on all hours scheduled and rescheduled at all institutions attended, including MSU (2.00 or better Cumulative GPA)*
> - *make a C average on all hours scheduled and rescheduled at MSU (2.00 or better MSU GPA)*
> - *make a C average on all hours scheduled and rescheduled at MSU which apply to the EE curriculum (2.00 or better MSU degree average)*
> - *make a C average on all ECE courses and all CSE courses scheduled and rescheduled at MSU which apply to the EE curriculum (2.00 or better MSU ECE and CSE course averag*e)

The first two requirements are University requirements on undergraduate degrees in AOP 12.11. The last two requirements are EE program GPA requirements. It is difficult to calculate these EE program GPA requirements for both staff in degree audits. Furthermore, the calculation of these two program of study GPA requirements is difficult for students as they progress through the program. Thus, students are often not aware that their academic performance falls below these requirements until they are alerted to the fact during a preliminary degree audit in the penultimate semester. The faculty desire program of study GPA requirements that are (1) easy to calculate, and (2) easily monitored by students earlier and more often.

This proposal is to change the GPA requirements for the BS in Electrical Engineering degree to

Students expecting to graduate from Mississippi State University with a bachelor of science degree in Electrical Engineering, in addition to satisfactorily completing the EE curriculum requirements, must meet the following minimum GPA requirements for graduation:

- *make an overall C average on all hours scheduled and rescheduled at all institutions attended, including MSU (2.00 or better Cumulative GPA)*
- *make a C average on all hours scheduled and rescheduled at MSU (2.00 or better MSU GPA)*
- *earn at least a 2.5/4.0 average on all hours with ECE or CSE course prefixes scheduled and rescheduled at all institutions attended, including MSU*

The first two requirements remain the University requirements for graduation from undergraduate program detailed in AOP 12.11. The third graduation GPA requirements is easily codified into the CAPP compliance report. With CAPP calculation of the student's status toward the third requirement, the student and their adviser can be aware of the students status toward the degree's GPA requirements at all times. In the BSEE program, students are advised by a professional advisor before registration is allowed. As part of this every semester advising, the EE program advisor goes over the CAPP report with the student. The proposed new GPA requirement will very visibly represented by the green bar (ECE or CSE hours average > 2.5) or red bar (ECE or CSE hours average < 2.5) in the CAPP report.

4. SUPPORT

See the attached letters from the ECE faculty

5. PROPOSED 4-LETTER ABBREVIATION

No changeover

6. EFFECTIVE DATE

Fall 2018

JAMES WORTH
BAGLEY
COLLEGE OF ENGINEERING
MISSISSIPPI STATE UNIVERSITY
ELECTRICAL & COMPUTER ENGINEERING
Box 9571
Mississippi State, MS 39762
Tel: (662) 325-3912 Fax: (662) 325-2298

4 December 2017

TO: James W. Bagley College of Engineering Committee on Courses and Curricula & Mississippi State University University Committee on Courses and Curricula

FROM: Undergraduate Committee, Department of Electrical & Computer Engineering

RE: Degree modification for the BS in Electrical Engineering

The Undergraduate Committee of the Department of Electrical & Computer Engineering has reviewed the application for the proposed degree modification for the BS in Electrical Engineering. After doing so, the Undergraduate Committee recommended and the ECE faculty unanimously approved the degree modifications at a an ECE faculty meeting held on 10 November 2017.

We offer the full support of the proposed degree modifications.

Nicolas Younan, ECE Department Head

J.W. Bruce, Undergraduate Committee Chair

J. Patrick Donohoe

Randy Follett

Masoud Karimi

Mehmet Kurum

Jean Mohammadi-Aragh

Lokesh Shivakumaraiah

APPROVAL FORM FOR

DEGREE PROGRAMS

MISSISSIPPI STATE UNIVERSITY

NOTE: This form is a cover sheet that must accompany the degree program change proposal. The actual proposal should be prepared in accordance with format requirements provided in the *Guide and Format for Curriculum Proposals* published by the UCCC. Both cover sheet and proposal should be submitted to UCCC Mail Stop 9702 (281 Garner Hall), Phone: 325-9410.

College: Bagley College of Engineering **Department:** Dean of Engineering

Contact Person: J.W. Bruce **Mail Stop:** 9571 **E-mail:** *jwbruce@ece.msstate.edu*

Nature of Change: Add Concentration **Date Initiated:** 1/1/18 **Effective Date:** Fall 2018

Current Degree Program Name: Ph.D. in Engineering
Major: Engineering **Concentration:** N/A

New Degree Program Name: Ph.D. in Engineering
Major: Engineering **Concentration:** Engineering Education

Summary of Proposed Changes:

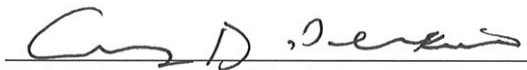
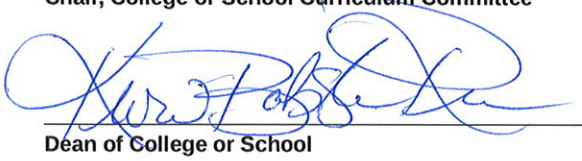
The Dean of Engineering in the Bagley College of Engineering proposes a new concentration in Engineering Education for the existing Ph.D. in Engineering. This new concentration will be offered along with the existing concentrations in Aerospace Engineering, Applied Physics, Biological Engineering, Chemical Engineering, Civil Engineering, and Mechanical Engineering.

The proposed concentration will create a interdisciplinary program by which students can pursue a Ph.D. in Engineering performing research into the emerging field of engineering education. Students will take courses in engineering, education, statistics, psychology, cogntive science and other subjects supporting research, discovery, and scholarship in engineering education.

Graduates of the proposed concentration will be able to conduct and direct research in engineering education, develop, review, and critique effective research designs, effectively teach engineering subjects, design and assess engineering programs, and address critical issues facing engineering education in the 21st century.

Upon approval, the proposed concentration in Engineering Education for the Ph.D. in Engineering will be the only degree of its type in the Southeastern Conference (SEC) and only one of nine nationwide.

Approved: **Date:**

	2/9/18
Department Head	
	3/5/18
Chair, College or School Curriculum Committee	
	3/7/18
Dean of College or School	
Chair, University Committee on Courses and Curricula	
Chair, Graduate Council(if applicable)	
Chair, Deans Council	

GRADUATE DEGREE MODIFICATION OUTLINE FORM

Use the chart below to make modifications to an existing Graduate Degree.

All deleted courses and information should be shown in *italics* and all new courses and information in **bold**. Please include the course prefix, number, and title in both columns. Expand rows as needed.

CURRENT Degree Description	PROPOSED Degree Description
Degree: Doctor of Philosophy Major: Engineering Concentrations: Aerospace Engineering Applied Physics Biological Engineering Chemical Engineering Civil Engineering Mechanical Engineering	Degree: Doctor of Philosophy Major: Engineering Concentrations: Aerospace Engineering Applied Physics Biological Engineering Chemical Engineering Civil Engineering **Engineering Education** Mechanical Engineering
Existing degree description is unchanged.	[Click here and type new degree description]
[Click here and type old concentration description] Existing concentrations (Aerospace Engineering, Applied Physics, Biological Engineering, Chemical Engineering, Civil Engineering, and Mechanical Engineering) descriptions are unchanged.	**Dr. Kari Babski-Reeves** **Associate Dean for Research & Graduate Studies and** **160 McCain** **Box 9544** **Mississippi State, MS 39762** **Telephone: 662-325-2270** **Fax: 662-325-8573** **Graduate Coordinator: Dr. J.W. Bruce** **Simrall 335** **Box 9571** **Mississippi State, MS 39762-9571** **Telephone: 662-325-1530** **Fax: -662-325-2298** **E-mail: grad@ene.msstate.edu** **An Interdisciplinary Curriculum – The Ph.D. in Engineering with concentration in Engineering Education (ENE) incorporates theory and practice so that its students are prepared to be teachers and scholars in the emerging field of engineering education. Engineering education incorporates theory with applied practice to prepare its graduates for a wide range of careers:** • **Engineering policy** • **Corporate training management** • **Educational technology development** • **University assessment** • **University administration**

	• Academia • Research and scholarship **Graduates of the doctoral program will be able to conduct and direct research in engineering education, develop, review, and critique effective research designs, effectively teach engineering subjects, design and assess engineering programs, and address critical issues facing engineering education.** **The engineering education graduate program is interdisciplinary, with faculty drawn from the academic departments of the Bagley College of Engineering and the College of Education. Program of study and research leads to the Doctor of Philosophy in Engineering degree with concentration in Engineering Education, and is offered on the Starkville campus.** **Admission Criteria – An applicant for admission to graduate study must hold a bachelor's degree from a fully recognized four-year educational institution that has unconditional accreditation with appropriate accreditation agencies. He/she must meet the admission requirements of the Graduate School and receive a positive recommendation by the Engineering Education Program Committee. Admission is based primarily on past performance, letters of recommendation, Graduate Record Examination (GRE) scores, and the applicant's demonstrated ability to be successful in the ENE Ph.D. program. Applicants with a bachelor's or master's degree from a program accredited by the Engineering Accreditation Commission (EAC) of ABET are preferred.** **Regular admission to graduate study in the ENE Ph.D. program for students entering with only a Bachelors degree requires a minimum grade point average (last four semesters of undergraduate work) of 3.50/4.00. Regular admission to graduate study in the ENE Ph.D. program for students entering with a Masters degree requires a minimum grade point average of 3.30/4.00 in the student's graduate work. When a student is deficient in one of the criteria cited, the student's application, nevertheless, may be considered for admission based on the strength of other materials contained in the student's application. However, reasonable minimum levels of performance must be achieved in both the applicant's GPA and GRE scores. International applicants not holding degrees from U.S. institutions must submit a Test of English as a Foreign Language (TOEFL) report of 575 PBT (84 iBT on the internet-based test or an International English Language Testing Systems (IELTS) score of 7.0 or higher to be considered for admission.** **Provisional Admission – An applicant who has not fully**

	met the GPA requirement stipulated by the University may be admitted on a provisional basis. The provisionally-admitted student is eligible for a change to regular status after receiving a 3.50 GPA on the first 9 hours of graduate courses at Mississippi State University (with no grade lower than a B). The first 9 hours of graduate courses must be within the student's program of study. Courses with an S grade, transfer credits, or credits earned while in Unclassified status cannot be used to satisfy this requirement. If a 3.50 GPA is not attained on the first 9 hours of graduate courses, the provisional student shall be dismissed from the graduate program. While in the provisional status, a student is not eligible to hold a graduate assistantship. The minimum acceptable undergraduate grade point average for admission as a provisional student is 3.0/4.0 for the junior and senior years. **Contingent Admission – A student not possessing a B.S. or M.S. degree in an engineering or computer science discipline may be granted contingent admission, depending on qualifications and experience. A plan of action toward regular admission is formed by the ENE Graduate Coordinator and ENE Program Committee on a case-by-case basis. Typically, contingency is removed by completing undergraduate prerequisite courses in the first few terms after admission. Contingency admitted students must maintain at least a 3.50/4.00 GPA on all undergraduate prerequisite courses prescribed by their contingency plan of action. For more information, please contact the ENE Graduate Coordinator.** **PROGRAM OF STUDY** **The specific requirements for the Ph.D. in Engineering with concentration in Engineering Education degree are governed by the requirements of the Graduate School, the Bagley College of Engineering, and by the student's graduate committee. The ENE PhD student's graduate committee must include at least two Engineering Education faculty members, one College of Education faculty member, and one faculty member from their engineering technical subject area. The graduate committee will ensure that the student's program of study adequately addresses each of the three primary cross-disciplinary areas: engineering education, educational theory/cognitive science/psychology, and an engineering technical area. The Engineering Education Graduate Coordinator must approve the composition of the graduate committee.** **The Ph.D. program in Engineering with concentration in Engineering Education will contain at a minimum**

	48 hours of formal course work at the 6000-level or higher (beyond the bachelor's degree), and 20 hours of dissertation credit. At least 24 hours of course work should be at the full graduate level (8000-level or higher). **As part of their program of study, all ENE PhD students will be required to take** • **ENE 8003 Foundations in Engineering Education** • **ENE 8303 Pedagogy & Assessment in Engineering Education** • **EDF 8363 Functions & Methods of Research in Education** • **EDF 9373 Education Research Design** **The Engineering Education Graduate Coordinator and the student's graduate committee must approve the student's program of study.** **The Doctor of Philosophy in Engineering with concentration in Engineering Education, in addition to the coursework and research hours, includes an oral preliminary examination, a dissertation, and dissertation defense. Each candidate for the doctoral degree must conduct research and in their dissertation defense on that research demonstrate a mastery of the techniques of research and make a distinct contribution to the field of Engineering Education The dissertation must conform to the rules of the Graduate School.** **Students in the ENE PhD program are required to pass the oral comprehensive examination in accordance with the program requirements and all Graduate School policies. The student must have completed, or be within 6 hours of completing, their program of study coursework. The comprehensive exam consists of topics from the student's completed program of study, a presentation of current research activities toward the student's dissertation, and a detailed plan/proposal of dissertation research to be done. Upon successful completion of the comprehensive exam and all coursework on the student's program of study, the student advances to PhD candidacy.** **PhD candidates are required to pass a public dissertation defense to graduate. The Graduate Catalog lists dissertation defense requirements. Additionally, PhD candidates must submit 2 journal papers from their dissertation prior to graduation. To receive the ENE Graduate Coordinator's signature on the signature page, a PhD candidate must provide proof of two journal submission from the dissertation work; otherwise the PhD candidate will not be allowed to graduate. Journal paper submissions from work not**

	a part of the dissertation, while strongly encouraged, cannot be used to satisfy this requirement. **Academic Performance – In addition to the criteria defined in the current Graduate Catalog, unsatisfactory performance in the PhD program Engineering with concentration in Engineering Education is defined as any of the following.** • **Failure to maintain a 3.50/4.00 or better GPA on all prerequisite undergraduate courses taken while in the ENE PhD program,** • **Failure to maintain a 3.30/4.00 or better GPA on all graduate courses attempted,** • **Failure to maintain a 3.30/4.00 or better GPA on all courses on the student's program of study** • **Earning two or more grades of C in prerequisite undergraduate courses taken while in the ENE PhD program and courses listed on the student's program of study** • **Earning a grade of U, D, or F in any course while enrolled in the ECE PhD program,** • **Failure of the comprehensive exam,** • **Failure of the preliminary exam, or** • **Unsatisfactory evaluation of dissertation** **Any one of the conditions above will constitute the basis for review for possible immediate dismissal from the program.** **If the student's GPA drops below the required average 3.30/4.00, the ENE Graduate Coordinator will review the record along with the student's graduate committee and will recommend a final course of action, which will be immediate dismissal or the establishment of a probationary period in which corrective action must take place.** **While on probation, the student is not eligible to receive an assistantship and is required to raise his/her cumulative GPA to 3.30/4.00 or better by the end of the following semester of enrollment. Directed Individual Study courses are excluded.** **In case of a dismissal from the graduate program, a student may appeal his/her academic dismissal in accordance with policy in the MSU Graduate Catalog.** PROGRAM OF STUDY COURSES **The Ph.D. in Engineering with concentration in Engineering Education requires a minimum of 68 credit hours beyond the B.S. are required (48 credit hours of graduate coursework and 20 credit hours of dissertation research).**

Because of the interdisciplinary nature of the Engineering Education program, courses listed under the "Courses" below are typical of those used to assemble a program of study. Courses not listed can be used for graduate credit with the approval of the student's graduate committee and the ENE Graduate Coordinator. The program of study must demonstrate the student has achieved a working knowledge of

- **engineering education theory and practice**
- **education theory, and**
- **an engineering technical area**

No program of study can contain more than six credit hours of Directed Individual Study courses.

Credit from Previous Graduate Work – Students entering the PhD program in Engineering with concentration in Engineering Education with prior graduate course work may apply up to 24 hours toward their program of study. Prior graduate degree courses applied toward the ENE PhD program of study must be approved by the ENE Graduate Coordinator.

COURSES

ENE 8003 Foundations in Engineering Education: 3 hours
(Prerequisite: Graduate standing) An examination of engineering education principles through relevant literature and current topics. Focus on theories of engineering education learning and design.

ENE 8303 Pedagogy & Assessment in Engineering Education: 3 hours
(Prerequisite: Graduate standing and consent of the instructor) Assessment issues and skills important for engineering faculty, including strengths and weakness of a variety of quantitative and qualitative assessment strategies. Assessment in course design, ABET engineering accreditation criteria and procedures.

ENE 8703 Design in Engineering Education & Practice: 3 hours
(Prerequisite: ENE 8003 and consent of the instructor) An examination of the nature of design and relative cognitive theories that aid in understanding how people learn, teach, and conduct design.

CURRENT CURRICULUM OUTLINE	Required Hours	PROPOSED CURRICULUM OUTLINE	Required Hours
College Required Courses		College Required Courses	
Major Required Courses		Major Required Courses	
Concentration 1. Courses Existing concentrations courses are unchanged.		Concentration 1. Courses **ENE 8003 Foundations in Engineering Education** **ENE 8303 Pedagogy & Assessment in Engineering Education** **EDF 8363 Functions & Methods of Research in Education** **EDF 9373 Education Research Design** **ST8114 Statistical Methods & ST8253 Regression Analysis – or – IE6623 Engineering Statistics II & ST8603 Applied Statistics** **select graduate courses in EDF and EPY** **other engineering graduate courses** **select graduate elective courses** **ENE 9000 dissertation credit**	 **3** **3** **3** **3** **6-7** **6** **18** **6** **20**
Concentration 2. Courses		Concentration 2. Courses	
Total Hours Existing concentrations courses are unchanged.		Total Hours **Ph.D. (beyond baccalaureate)**	 **68**

3. JUSTIFICATION AND STUDENT LEARNING OUTCOMES

As engineering increasingly improves the global standard of living, security, and prosperity, demands are increasing for engineering colleges to produce more engineering graduates trained to meet the needs of business, government, industry, and the academy. Buoyed by the omnipresence of technology, communications, and computing, engineering practice and design worldwide has changed and engineering educators have had to re-evaluate how the engineer of tomorrow should be educated to develop students' engineering thought processes and improve analytical and problem-solving skills. One thing is clear: engineering education practices of the last century are not capable of delivering the desired quality of engineer needed, nor in the quantities required.

Over the last several decades, the disparate engineering technical areas have come independently to the same conclusion – the field of engineering needs active discipline-based researchers performing scholarly, evidence-based discovery into innovation and best practices of engineering education, efficacy of current and future engineering education methods, dissemination of these discoveries, and a program to produce an adequate supply of scholar-researchers prepared to advance the body of knowledge in engineering education.

The Bagley College of Engineering (BCoE) has a long history as a national leader in engineering education, as evidenced by (i) its graduates and their successes, and (ii) its faculty and their engineering education research projects and publications. Furthermore, BCoE PhD graduates have clearly demonstrated success as engineering educators in their own right via productive and well-recognized careers in academe. As the next step to formalize the training, mentoring, and creation of engineering educators and researchers, the BCoE faculty have proposed this Engineering Education concentration for the PhD in Engineering degree. The proposed program will be the only one of its type in the Southeastern Conference (SEC), and the only one of nine such programs nationwide. The other scholarly, research-focused Engineering Education PhD degrees are offered at Arizona State University, Clemson University, Louisiana Tech, Ohio State University, Purdue University, Rensselaer Polytechnic Institute, Utah State University, and Virginia Tech. Engineering education researchers and faculty at many of these institutions are already engaged in research collaborations with BCoE faculty. These existing programs were examined to inform the proposed Engineering Education concentration at Mississippi State.

The proposed program will not result in any duplication within the IHL system. The proposed courses focus on research on practice, assessment, and evaluation of engineering education within the university setting.

By providing additional advanced opportunities to the diverse population of engineers already produced at Mississippi State University, the proposed Engineering Education concentration will inject highly qualified, diverse candidates into faculty and leadership in the colleges of engineering in universities regionally, nationally, and globally.

Graduates from the program will become more marketable as a result of the proposed Engineering Education concentration. They will have opportunities for career advancement in academic faculty positions, engineering educational assessment, research and leadership, engineering policy, corporate training management, and instructional technology development. Graduates will gain career mobility as the program prepares them to compete for high-ranking leadership opportunities in Mississippi, the Southeast, the US, and the world. Graduates will earn competitive salaries commensurate with PhD-level education.

The proposed Engineering Education concentration will produce graduates capable of world-class scholarly, evidence-based discovery and research into pedagogical practices of engineering education of the twenty-first century. Furthermore, the graduates will

- Advance global engineering innovations through their abilities to develop, conduct, and direct research in engineering education

- Create evaluative, instructional, and supportive frameworks for engineering education activities, including teaching, learning, assessment, research, and global dissemination
- Develop, implement, and actively demonstrate evidence-based approaches for best practice engineering education
- Establish authentic problems and activities emphasizing the application of scientific and technological principles in engineering classrooms, laboratories, and design environments

4. SUPPORT

Include are letters of support for the proposed concentration in Engineering Education for the PhD in Engineering from

- Engineering Education working group
- BCoE department heads
- BCoE Dean and Associate Dean
- Dean of the College of Education
- Department Head of the Department of Couseling, Educational Psychology & Foundations and the Department of Currulum, Instruction and Special Education in the College of Education.
- Department Head of the Department of Mathematics and Statistics in the College of Arts & Sciences

5. PROPOSED ABBREVIATION

ENE

6. EFFECTIVE DATE

Fall 2018

MISSISSIPPI STATE UNIVERSITY™
JAMES WORTH BAGLEY COLLEGE OF ENGINEERING

ENGINEERING EDUCATION WORKING GROUP
Chair: Dr. Jean Mohammadi-Aragh
jean@ece.msstate.edu

December 7, 2017

TO: James W. Bagley College of Engineering Committee on Courses and Curricula &
Mississippi State University University Committee on Courses and Curricula

FROM: Faculty Representatives, Engineering Education Working Group, Bagley College of Engineering

RE: Modification of Ph.D. in Engineering to Include Engineering Education Concentration

The Engineering Education Working Group (ENE-WG) faculty members have reviewed the application for the proposed modification of the Ph.D. in Engineering that adds an engineering education concentration. The faculty members of the ENE-WG unanimously approved the modification at a regular meeting held on 22 February 2017 with additional electronic review of this application 30 October 2017 through 3 November 2017.

We offer the full support of the proposed addition of an engineering education concentration to the Ph.D. in engineering.

Jean Mohammadi-Aragh, ENE-WG Chair

JW Bruce

Seamus Freyne

Priscilla Hill

Bryan A. Jones

Sarah Lee

Lesley Strawderman

Rani Sullivan

MISSISSIPPI STATE UNIVERSITY
JAMES WORTH BAGLEY COLLEGE OF ENGINEERING

MEMO

TO: James W. Bagley College of Engineering Committee on Courses and Curricula
Mississippi State University University Committee on Courses and Curricula

FROM: Jason Keith, Dean of the Bagley College of Engineering

RE: Ph.D. in Engineering – Engineering Education concentration

DATE: February 7, 2018

We, the undersigned leadership in the James W. Bagley College of Engineering, have the reviewed the proposal for the new concentration in Engineering Education for the Ph.D. degree in Engineering and the associated new courses. We wholeheartedly support these proposals.

Jason Keith, Ph.D., Earnest W. and Mary Ann Deavenport, Jr. Chair
Dean of Bagley College of Engineering

Kari Babski-Reeves, Associate Dean for Graduate Studies and Research
Bagley College of Engineering

7 February 2018

TO: James W. Bagley College of Engineering Committee on Courses and Curricula
Mississippi State University University Committee on Courses and Curricula

FROM: Academic Department Heads, James W. Bagley College of Engineering

RE: Ph.D. in Engineering – Engineering Education concentration

We have the reviewed the proposal for the new concentration in Engineering Education for the Ph.D. degree in Engineering and the associated new courses. Our support for these proposals is given below.

Support proposal	Do not support proposal	
✓		Davy Belk, Ph.D., Aerospace Engineering
✓		Jonathan Pote, Ph.D., Agricultural & Biological Engineering
✓		Bill Elmore, Ph.D., Chemical Engineering
✓		Dennis Truax, Ph.D., P.E., Civil & Environmental Engineering
✓		Ed Swan, Ph.D., Computer Science & Engineering
✓		John Usher, Ph.D., P.E., Industrial & Systems Engineering
✓		Pedro Mago, Ph.D., Mechanical Engineering
✓		Nicolas Younan, Ph.D., Electrical & Computer Engineering

MISSISSIPPI STATE UNIVERSITY™
Department of Mathematics and Statistics

TO: James W. Bagley College of Engineering Committee on Courses and Curricula, Mississippi State University Committee on Courses and Curricula

FROM: Mohsen Razzaghi
Department Head, Mathematics and Statistics

RE: Modification of Ph.D. in Engineering, Engineering Education Concentration

DATE: January 9, 2018

I have the reviewed the proposed modification of the Ph.D. in Engineering that adds an engineering education concentration. The modification will require students in the engineering education concentration to take 1-2 statistics courses offered by my department. This requirement will not burden my department. I have no objection to the proposed modification.

Mohsen Razzaghi, Ph.D.
Professor of Mathematics
Head, Department of Mathematics and Statistics

P.O. Box MA, 410 Allen Hall, MS State, MS 39762
www.msstate.edu/dept/math • office@math.msstate.edu • Phone: (662) 325-3414 • Fax: (662) 325-0005

MISSISSIPPI STATE UNIVERSITY

COLLEGE OF EDUCATION
Office of the Dean
P.O. Box 9710
175 President's Circle, 309 Allen Hall
Mississippi State, MS 39762
P. 662.325.3717
F. 662.325.8784
www.educ.msstate.edu

7 February 2018

TO: James W. Bagley College of Engineering Committee on Courses and Curricula
Mississippi State University Committee on Courses and Curricula

FROM: Dean, College of Education

RE: Modification of Ph.D. in Engineering, Engineering Education Concentration

Representatives from the Bagley College of Engineering have discussed their proposed modification of the Ph.D. in Engineering, which will add a concentration in engineering education. College of Education representatives have reviewed the proposed modification together with the proposed new courses. Our signatures below indicate our support for the proposal and the new courses.

Dr. Richard Blackbourn, Dean, College of Education

MISSISSIPPI STATE UNIVERSITY

COLLEGE OF EDUCATION
Department of Curriculum, Instruction,
and Special Education
P.O. Box 9705
175 President's Circle
Allen Hall, Room 310
Mississippi State, MS 39762
P. 662.325.3523
F. 662.325.7857
cise.msstate.edu

TO: James W. Bagley College of Engineering Committee on Courses and Curricula
Mississippi State University Committee on Courses and Curricula

FROM: Linda Cornelious
Professor and Interim Department Head

DATE: February 7, 2018

RE: Modification of Ph.D. in Engineering, Engineering Education Concentration

I have reviewed the proposed modification of the Ph.D. in Engineering that adds an engineering education concentration. The modification will require students enrolled in the concentration to take courses offered by our department. This requirement will not place a burden on my department. As such, I have no objection to the proposed modification.

Thank you for your consideration of this proposed modification of the Ph.D. in Engineering that adds an engineering education concentration.

MISSISSIPPI STATE UNIVERSITY™
DEPARTMENT OF COUNSELING, EDUCATIONAL PSYCHOLOGY AND FOUNDATIONS

7 February, 2018

TO: James W. Bagley College of Engineering Committee on Courses and Curricula
Mississippi State University Committee on Courses and Curricula

FROM: David Morse, Head, Counseling, Educational Psychology, & Foundations

RE: Modification of Ph.D. in Engineering, Engineering Education Concentration

I have the reviewed the proposed modification of the Ph.D. in Engineering that adds an engineering education concentration. The modification will require students enrolled in the concentration to take courses offered by my department. This requirement will not burden my department. I have no objection to the proposed modification.

We wish you the best in opening up this new degree option.

David Morse

Digitally signed by David Morse
Date: 2018.02.07 15:54:02 -06'00'

David T. Morse

Professor and Head

Counseling, Educational Psychology, & Foundations

APPROVAL FORM FOR

DEGREE PROGRAMS

MISSISSIPPI STATE UNIVERSITY

NOTE: This form is a cover sheet that must accompany the degree program change proposal. The actual proposal should be prepared in accordance with format requirements provided in the *Guide and Format for Curriculum Proposals* published by the UCCC. Both cover sheet and proposal should be submitted to UCCC Mail Stop 9702 (281 Garner Hall), Phone: 325-9410.

College: Forest Resources **Department:** Forestry

Contact Person: Heidi Renninger **Mail Stop:** 9681 **E-mail:** hr427@msstate.edu
Nature of Change: Degree Program Modification **Date Initiated:** 2/13/2018
Effective Date: 8/15/2018
Current Degree Program Name:

Major: Forestry **Concentrations:** Wildlife Management; Urban Forestry

New Degree Program Name:

Major: Forestry **Concentrations:** Wildlife Management; Urban Forestry

Summary of Proposed Changes:

Wildlife Management concentration: BIO 4203 Taxonomy of Spermatophytes is replaced with FO 3213 Tree Physiology

Urban Forestry concentration: REF 3433 Real Property Evaluation is replaced with FO 4683 Introduction to Urban and Community Forestry

Approved:	Date:
Andrew Egell Department Head	2/15/18
Chair, College or School Curriculum Committee	16 Feb 2018
Jon A. Mann for S.H. Dean of College or School	2/16/18
Chair, University Committee on Courses and Curricula	
Chair, Graduate Council (if applicable)	
Chair, Deans Council	

1. CATALOG DESCRIPTION

No changes are proposed.

2. CURRICULUM OUTLINE

CURRENT Degree Description	PROPOSED Degree Description
Degree: Bachelor of Science Major: Forestry Concentration: Environmental Conservation, Forest Management, Forest Products, Wildlife Management, Urban Forestry	Degree: Bachelor of Science Forestry Major: Forestry Concentration: Environmental Conservation, Forest Management, Forest Products, Wildlife Management, Urban Forestry
The objective of the Forestry Major is to prepare its graduates for professional, science-based careers in the management and use of forested ecosystems. By combining courses offering a broad general education with specialized professional courses, the curriculum of the Forestry Major is designed to produce professionally competent graduates who have appropriate development in interpersonal relations, written and oral communications, cultural understanding, environmental awareness, and professional ethics. The educational programs in Forest Management, Wildlife Management, Urban Forestry, Environmental Conservation, and Forest Products lead to the first professional degree in Forestry at Mississippi State University and are accredited by the Society of American Foresters (SAF), the specialized accrediting body recognized by the Commission of Recognition of Post-secondary Accreditation and the U.S. Department of Education as the accrediting agency for forestry education in the United States. The Forest Products program is also accredited by the Society of Wood Science and Technology (SWST). The core curriculum of the Forestry Major is comprised of specifically selected and intentionally designed courses which must be completed satisfactorily by each student who intends to graduate in this major. In addition to completing the core curriculum of the Forestry Major, each student must complete one of five academic concentrations for specialized study offered by the Forestry Major. Graduates of the major are qualified to become a Registered Forester in Mississippi after completing an examination for this purpose from the Board of Registration for Foresters in Mississippi. The Forestry Major is designed for completion in four academic years which	The objective of the Forestry Major is to prepare its graduates for professional, science-based careers in the management and use of forested ecosystems. By combining courses offering a broad general education with specialized professional courses, the curriculum of the Forestry Major is designed to produce professionally competent graduates who have appropriate development in interpersonal relations, written and oral communications, cultural understanding, environmental awareness, and professional ethics. The educational programs in Forest Management, Wildlife Management, Urban Forestry, Environmental Conservation, and Forest Products lead to the first professional degree in Forestry at Mississippi State University and are accredited by the Society of American Foresters (SAF), the specialized accrediting body recognized by the Commission of Recognition of Post-secondary Accreditation and the U.S. Department of Education as the accrediting agency for forestry education in the United States. The Forest Products program is also accredited by the Society of Wood Science and Technology (SWST). The core curriculum of the Forestry Major is comprised of specifically selected and intentionally designed courses which must be completed satisfactorily by each student who intends to graduate in this major. In addition to completing the core curriculum of the Forestry Major, each student must complete one of five academic concentrations for specialized study offered by the Forestry Major. Graduates of the major are qualified to become a Registered Forester in Mississippi after completing an examination for this purpose from the Board of Registration for Foresters in Mississippi. The Forestry Major is designed for completion in four academic years which

includes a nine-week Summer Field Program between the sophomore and junior years. Completion of the Summer Field Program is prerequisite to enrollment in junior/senior level professional courses in the Forestry Major and students should plan their schedules accordingly. Correspondence courses are not accepted toward the forestry degree.	includes a nine-week Summer Field Program between the sophomore and junior years. Completion of the Summer Field Program is prerequisite to enrollment in junior/senior level professional courses in the Forestry Major and students should plan their schedules accordingly. Correspondence courses are not accepted toward the forestry degree.
CONCENTRATION DESCRIPTION **Wildlife Management Concentration** This concentration is designed for students who intend to pursue careers that emphasize wildlife management within the context of multiple-use management of forest land. The concentration fulfills the course requirements for certification as wildlife biologists by The Wildlife Society. Many graduates of this concentration undertake graduate studies in wildlife biology and related areas to qualify for entry-level positions as wildlife biologists. **Urban Forestry Concentration** The Urban Forestry Concentration addresses an emerging need for the management of trees in towns and cities. Urban and community foresters manage trees along city streets, in municipal parks, private wood lots, and utility right-of-ways. Employers include federal, state, and municipal governments, private consultants, and industry.	CONCENTRATION DESCRIPTION **Wildlife Management Concentration** This concentration is designed for students who intend to pursue careers that emphasize wildlife management within the context of multiple-use management of forest land. The concentration fulfills the course requirements for certification as wildlife biologists by The Wildlife Society. Many graduates of this concentration undertake graduate studies in wildlife biology and related areas to qualify for entry-level positions as wildlife biologists. **Urban Forestry Concentration** The Urban Forestry Concentration addresses an emerging need for the management of trees in towns and cities. Urban and community foresters manage trees along city streets, in municipal parks, private wood lots, and utility right-of-ways. Employers include federal, state, and municipal governments, private consultants, and industry.

CURRENT CURRICULUM OUTLINE	Required Hours	PROPOSED CURRICULUM OUTLINE	Required Hours
English (General Education): EN 1103 English Composition I OR EN 1163 Accelerated Composition I EN 1113 English Composition II OR EN 1173 Accelerated Composition II	6	English (General Education): EN 1103 English Composition I OR EN 1163 Accelerated Composition I EN 1113 English Composition II OR EN 1173 Accelerated Composition II	6
Fine Arts (General Education): Any Gen Ed course	3	Fine Arts (General Education): Any Gen Ed course	3
Natural Sciences BIO 1134 Biology I CH 1043 Survey of Chemistry I OR CH 1213 Chemistry I	7	Natural Sciences BIO 1134 Biology I CH 1043 Survey of Chemistry I OR CH 1213 Chemistry I	7
Math (General Education): MA 1313 College Algebra ST 2113 Introduction to Statistics OR	6	Math (General Education): MA 1313 College Algebra ST 2113 Introduction to Statistics OR	6

BQA 2113 Business Statistical Methods I OR MA 2113 Intro to Stats OR ST 3123 Intro to Stat. Inf. OR MA 3123 Intro to Stat. Inf.		BQA 2113 Business Statistical Methods I OR MA 2113 Intro to Stats OR ST 3123 Intro to Stat. Inf. OR MA 3123 Intro to Stat. Inf.	
Humanities (General Education): Any Gen Ed courses	6	Humanities (General Education): Any Gen Ed courses	6
Social/Behavioral Sciences (General Education): AEC 2713 Introduction Food and Resource Economics OR EC 2113 Introduction to Macro Economics OR EC 2123 Introduction to Micro Economics FO 4113 Forest Economics	6	Social/Behavioral Sciences (General Education): AEC 2713 Introduction Food and Resource Economics OR EC 2113 Introduction to Macro Economics OR EC 2123 Introduction to Micro Economics FO 4113 Forest Economics	6
MAJOR CORE COURSES BIO 1144 Biology II EPP 3124 Forest Pest Mgt FO 1011 Forest Resources Survey FO 2113 Dendrology FO 2213 Forest Measurements FO 3012 Introduction to Forest Communities FO 3015 Forest Description and Analysis FO 4123 Forest Ecology FO 4213 Forest Biometrics FO 4221 Practice of Silviculture Laboratory FO 4223 Practice of Silviculture FO 4231 Introduction to Wood Supply Systems FO 4223 Forest Operations and Harvesting FO 4313 Spatial Technologies in Natural Resource Management FO 4413 Natural Resources Policy FO 4323 Forest Resources Management FO 4423 Professional Practice PSS 3303 Soils WFA 3031 Intro to Wildlife and Fisheries Practices WFA 4253 Prin of Wildlife Conservation and Management Oral Communication Requirement CO 1003 Fundamentals of Public Speaking Writing Requirement	64	MAJOR CORE COURSES BIO 1144 Biology II EPP 3124 Forest Pest Mgt FO 1011 Forest Resources Survey FO 2113 Dendrology FO 2213 Forest Measurements FO 3012 Introduction to Forest Communities FO 3015 Forest Description and Analysis FO 4123 Forest Ecology FO 4213 Forest Biometrics FO 4221 Practice of Silviculture Laboratory FO 4223 Practice of Silviculture FO 4231 Introduction to Wood Supply Systems FO 4223 Forest Operations and Harvesting FO 4313 Spatial Technologies in Natural Resource Management FO 4413 Natural Resources Policy FO 4323 Forest Resources Management FO 4423 Professional Practice PSS 3303 Soils WFA 3031 Intro to Wildlife and Fisheries Practices WFA 4253 Prin of Wildlife Conservation and Management Oral Communication Requirement CO 1003 Fundamentals of Public Speaking Writing Requirement	64

AIS 3203 Prof Writing ANR Hum Sci OR MGT 3213 Organizational Communication OR BIO 3013 Professional Writing for Biologists OR EN 3313 Writing for the Workplace Computer Literacy Requirement FO 3103 Computer Applications for Forest Resources Laboratory		AIS 3203 Prof Writing ANR Hum Sci OR MGT 3213 Organizational Communication OR BIO 3013 Professional Writing for Biologists OR EN 3313 Writing for the Workplace Computer Literacy Requirement FO 3103 Computer Applications for Forest Resources Laboratory	
CONCENTRATION COURSES <u>Wildlife Management Concentration</u> WFA 3133 Appl Aquatic and Terrestrial Ecology *BIO 4203 Taxon. of Spermatophytes OR BIO 4214 General Plant Physiology OR WFA 4223 Wildlife Plant ID* BIO 3524 Biology of Vertebrates CH 1053 Survey of Chemistry II OR CH1223 Chemistry II OR PH 1113 Gen Physics I OR PH 2213 Physics I OR GR 1114 Physical Geography WFA 4433 Mammalogy WFA 4443 Ornithology FO 4353 Natural Resource Law WFA 4243 Wildlife Techniques 3 credit hours Professional Elective See Department Advisor for list of current approved Professional Electives <u>Urban Forestry Concentration</u> FO 3113 Forest Recreation Management FO 4353 Natural Resource Law FO 4471 & FO 4472 GIS for Natural Resource Management Lab and GIS for Natural Resource Management OR FO 4453 Remote Sensing Applications LA 3623 Urban Planning Theory PS 1113 American Government PSS 2423 Plant Materials I PSS 4353 Arboriculture and Landscape Maintenance REF 3333 Principles of Real Estate	28 27	CONCENTRATION COURSES <u>Wildlife Management Concentration</u> WFA 3133 Appl Aquatic and Terrestrial Ecology **FO 3213 Tree Physiology OR BIO 4214 General Plant Physiology OR WFA 4223 Wildlife Plant ID OR BIO 4203 Taxon. of Spermatophytes** BIO 3524 Biology of Vertebrates CH 1053 Survey of Chemistry II OR CH1223 Chemistry II OR PH 1113 Gen Physics I OR PH 2213 Physics I OR GR 1114 Physical Geography WFA 4433 Mammalogy WFA 4443 Ornithology FO 4353 Natural Resource Law WFA 4243 Wildlife Techniques 3 credit hours Professional Elective - See Department Advisor for list of current approved Professional Electives <u>Urban Forestry Concentration</u> FO 3113 Forest Recreation Management FO 4353 Natural Resource Law FO 4471 & FO 4472 GIS for Natural Resource Management Lab and GIS for Natural Resource Management OR FO 4453 Remote Sensing Applications LA 3623 Urban Planning Theory PS 1113 American Government PSS 2423 Plant Materials I PSS 4353 Arboriculture and Landscape Maintenance REF 3333 Principles of Real Estate	28 27

REF 3433 Real Property Evaluation		**FO 4683 Introduction to Urban and Community Forestry**	
Wildlife Management Concentration Total Hours	126	Wildlife Management Concentration Total Hours	126
Urban Forestry Concentration Total Hours	125	Urban Forestry Concentration Total Hours	125

3. JUSTIFICATION AND STUDENT LEARNING OUTCOMES

Replacing BIO 4203 Taxonomy of Spermatophytes with FO 3213 Tree Physiology will reduce scheduling conflicts for students as well as increase student learning outcomes because students in the Forestry major are already required to take a plant taxonomy course in the form of FO 2113 Dendrology. Replacement of BIO 4203 with FO 3213 will expose students to plant physiological principles so that they better understand how and why environmental factors and management activities affect forest functioning and productivity which will increase the understanding in upper level Forestry core courses such as FO 4123 Forest Ecology and FO 4223 Practice of Silviculture. FO 3213 will also fill three credits of the plant science requirement in the coursework for the Wildlife Biologist Certification that our Wildlife Management students are encouraged to complete.

Replacing REF 3433 Real Property Evaluation with FO 4683 Introduction to Urban and Community Forestry will reduce scheduling conflicts for students as well as increase student learning outcomes because FO 4683 specifically addresses the knowledge needs of students in the Urban Forestry Concentration. Replacement of REF 3433 with FO 4683 will expose students to urban forestry principles so that they better understand the linkages between urban planning, urban ecology, forest management, and urban forest governance systems. This will increase the understanding of how FO 4683 connects to other upper level courses.

MISSISSIPPI STATE UNIVERSITY.

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MEMO TO: Dr. Dana Pomykal Franz, Chair
University Committee on Courses and Curricula (UCCC)

FROM: Dr. Stephen C. Grado, Chair
Department of Forestry Undergraduate Curriculum Committee (UGC)

DATE: February 12, 2018

SUBJECT: Department of Forestry Programmatic Changes

As per UCCC policy, I am providing this memo to confirm that the Department of Forestry's UGC has reviewed and approved the following Programmatic Changes to the Forestry Major:

Replacing BIO 4203 Taxonomy of Spermatophytes with FO 3213 Tree Physiology will reduce scheduling conflicts for students as well as increase student learning outcomes because students in the Forestry major are already required to take a plant taxonomy course in the form of FO 2113 Dendrology. Replacement of BIO 4203 with FO 3213 will expose students to plant physiological principles so that they better understand how and why environmental factors and management activities affect forest functioning and productivity which will increase the understanding in upper level Forestry core courses such as FO 4123 Forest Ecology and FO 4223 Practice of Silviculture. FO 3213 will also fill three credits of the plant science requirement in the coursework for the Wildlife Biologist Certification that our Wildlife Management students are encouraged to complete.

Replacing REF 3433 Real Property Evaluation with FO 4683 Introduction to Urban and Community Forestry will reduce scheduling conflicts for students as well as increase student learning outcomes because FO 4683 specifically addresses the knowledge needs of students in the Urban Forestry Concentration. Replacement of REF 3433 with FO 4683 will expose students to urban forestry principles so that they better understand the linkages between urban planning, urban ecology, forest management, and urban forest governance systems. This will increase the understanding of how FO 4683 connects to other upper level courses.

These changes can be summarized as above with no change to the course delivery or to the course content. See attached documents and information. Of note, the Forestry Department faculty unanimously approved implementing these changes. UGC members have now indicated below their written approval relative to these proposed course symbol changes and the packets that were developed and submitted.

Approve		Disapprove	
Print Name	Signature	Print Name	Signature
Stephen C. Grado	Stephen C. Grado		
Courtney Siegert	Courtney Siegert		
Changyun Yen			
Heidi Renninger			
LAURA GRACE			
David L. Evans	David L. Evans		(Grado signing for Evans)
Andrew Ezell	Andrew Ezell		
DONALD J. Grebner			
Heather Alexander			