



University Courses & Curricula Committee 2019-2020

November 20, 2019
Talley Student Union 5101
12:45pm-2:45pm

Call to Order 12:45pm

- Welcome from Chair Rudi Seracino
- Remarks and Updates from OUCCAS/DASA
- Approval of UCCC November 6th 2019 Minutes
- Course and Curricular Business

Old Business

Old Business			
Presenter	Reviewers	Action	Type
Reynolds	Gruehn, Domingue, Muse	ECE 384 Practical Engineering Prototyping	New Course. Returning from 11 Sept. 2019 Meeting
Domingue	Bruce, Shin, Marshall	*SLC 401 Independent Study in Leadership Theory Application	New Course. Tabled for consultation at 6 Nov. 2019 Meeting

New Business

Consent Agenda		
*AEE 332 Youth Leadership Dev.	Drop	Course being Dropped
AEE 434 Collaborative Leadership: Building Partnerships Across Community Programs.	Drop	Course being Dropped
*AFS 343 Black Religions	Minor	Revisions: Title
*ENG/FL 224 Contemporary World Literature II	Minor	Revisions: Description
*ENG 369 The American Novel of the 19th Century	Minor	Revisions: Title, removing GEP
*HS 202 Home Plant Identification	Minor	Revisions: Title, description
MUS 103 Theory and Musicianship I	Minor	Revisions: Title and description, other changes previously approved.
PHI 210 Representation, Reason and Reality	Minor	Revisions: Term Offering
PHI 305 Philosophy of Religion	Minor	Revisions: Term Offering
PHI 331 Philosophy of Language	Minor	Revisions: Term Offering
PHI 333 Knowledge and Skepticism	Minor	Revisions: Term Offering
PHI 376 History of Ethics	Minor	Revisions: Term Offering
*PRT/ES 449 Human Dimensions of Natural Resources in Australia/New Zealand	Minor	Revisions: Add ES crosslisting
*PRT/ES 450 Sustaining Natural Resources in Australia/New Zealand	Minor	Revisions: Add ES crosslisting
REL 210 Religious Traditions of the World	Minor	Revisions: Term Offering
REL 230 Asian Religions	Minor	Revisions: Term Offering
REL 331 The Hindu Tradition	Minor	Revisions: Term Offering
REL 333 Chinese Religions	Minor	Revisions: Term Offering
REL 350 Introduction to Judaism	Minor	Revisions: Term Offering
REL 383 Religion, Globalism, and Justice	Minor	Revisions: Term Offering
THE 233 Introduction to Stage Lighting	Drop	Course being Dropped
THE 234 Makeup Design for the Stage	Drop	Course being Dropped
THE 294 Independent Study in Theater	Drop	Course being Dropped
THE 323 Introduction to Scenic Design	Drop	Course being Dropped
THE 333 Costume Design and Technology	Drop	Course being Dropped
THE 363 Audition and Interpretation Techniques	Drop	Course being Dropped

University College			
Presenter	Reviewers	Action	Type
Domingue	Hessling, Schaffer, Reynolds	MUS 104 Theory and Musicianship Lab I	Revisions: Title SLOs, eval methods, ect
Domingue	Klesath, Fitzpatrick, Marshall	MUS 153 Theory and Musicianship II	Revisions: Title SLOs, eval methods, ect
Domingue	Fitzpatrick, Marshall, Kuzenski	MUS 154 Theory and Musicianship Lab II	Revisions: Title SLOs, eval methods, ect
Domingue	Hessling, Bruce, Roise	MUS 203a Theory and Musicianship III	New Course
Domingue	Muse, Driscoll, Merrill	MUS 204a Theory and Musicianship III	New Course
Domingue	Schaffer, Gruehn, Rucker	MUS 253 Theory and Musicianship IV	New Course
Domingue	Krause, Bruce, Shin	MUS 254 Theory and Musicianship Lab IV	New Course
Carlson Welch	Klesath, Rucker, Kuzenski	MUT 303 Introduction to Audio Technology I	New Course
Carlson Welch	Marshall, Krause, Roise	MUT 304 Introduction to Audio Technology II	New Course
Carlson Welch	Schaffer, Roise, Kuzenski	MUT 315 Music Perception and Cognition	New Course
Carlson Welch	Gruehn, Krause, Muse	MUT 403 Music Recording & Mixing	New Course
Carlson Welch	Driscoll, Bruce, Gruehn	MUT 431 Music Technology I	New Course
Carlson Welch	Merrill, Hessling, Reynolds	MUT 432 Music Technology II	New Course
Carlson Welch	Klesath, Simpson, Rucker	MUT 461 Music Technology Senior Project I	New Course
Carlson Welch	Shin, Bruce, Muse	MUT 462 Music Technology Senior Project II	New Course
Carlson Welch	Reynolds, Roise, Hessling	BS in Music Technology	Request to Establish

College of Natural Resources			
Presenter	Reviewers	Action	Type
Roise	Kuzenski, Bruce, Krause	*ET 460 Practice of Environmental Technology	Revisions: SLOs, eval methods, ect
Roise	Carlson Welch, Hessling, Schaffer	*FOR 353 GIS and Remote Sensing for Environmental Analysis and Assessment	Revisions: Dropping dual level, title, SLOs, eval methods, ect

College of Engineering			
Presenter	Reviewers	Action	Type
Reynolds	Domingue, Fitzpatrick, Simpson	CSC 216 Software Development Fundamentals	Revisions: Splitting lec and lab, title, hours, description
Reynolds	Carlson Welch, Kuzenski,	CSC 217 Software Development Fundamentals Lab	New Course
Reynolds	Muse, Driscoll, Roise	*ISE 413/(513) Humanitarian Logistics	New Course
Marshall	Kuzenski, Klesath, Rucker	14CPCTU Certificate in Computer Programming	Revisions
Marshall	Krause, Gruehn, Hessling	14CPM Minor in Computer Programming	Revisions
Marshall	Domingue, Schaffer, Merrill	14CSCBS Computer Science (BS)	Revisions
Marshall	Carlson Welch, Roise, Hessling	14CSCBS-14CSCGAME Computer Science (BS) Game Development	Revisions

College of Agriculture and Life Sciences			
Presenter	Reviewers	Action	Type
Bruce	Domingue, Reynolds, Muse	*BCH 220 Role of Biotechnology in Society	Revisions: SLOs, eval methods, ect
Merrill	Gruehn, Carlson Welch, Driscoll	11LPMAAS Livestock & Poultry Management (AAS)	Revisions

College of Humanities and Social Sciences			
Presenter	Reviewers	Action	Type
Gruehn	Bruce, Roise, Kuzenski	ENG 377 Fantasy	Revisions: SLOs, eval methods, ect
Driscoll	Roise, Klesath, Marshall	ENG 390 Classical Backgrounds of English Literature	Revisions: SLOs, eval methods, ect

College of Sciences			
Presenter	Reviewers	Action	Type
Muse	Carlson Welch, Reynolds, Merrill	*TOX 201 Poisons, People and the Environment	Revisions: SLOs, eval methods, ect

SLO= Student Learning Outcomes

***=Course Action Initiated Before October 1, 2019**

Discussion: Evaluation Methods and Schedule of Topics for Special Topics

Notes:

- All linked course actions are viewable in CIM.
- To view actions, please click on the hyperlink. You may need to use your Unity ID to log in.
- If you experience issues logging in, please go to <https://next-catalog.ncsu.edu/courseadmin/> and type the course prefix and number into the search bar.

SLO = Student Learning Outcomes



Division of Academic and Student Affairs
Office of Undergraduate Courses & Curricula
oucc.dasa.ncsu.edu
courses-curricula@ncsu.edu

Campus Box 7105
211A Park Shops
Raleigh, NC 27695-7105
P: 919.515.9769

University Courses and Curricula Committee

November 6, 2019
Talley Student Union 5101
Call to Order: 12:45 pm

Members Present: Chair Rudi Seracino, Marta Klesath(past chair), Kanton Reynolds, Melissa Merrill, Daniel Gruehn, Catherine Driscoll, Peter Hessling, Wendy Krause, Peggy Domingue, Rucker Rob, Jackie Bruce, Annie Carlson Welch, John Kuzenski, Melissa Merrill, Coleman Simpson, Chloe Shin, Spencer Muse, Lisa Marshall, David Fitzpatrick, Tania Allen (KS proxy), Gary Blank (JR proxy)

Members Absent: Kristen Schaffer, Joseph Roise,

Guests: Michael Domeracki, Debbie Acker, Daniel Monek, Jason DeRousie

Ex-Officio Members Present: Lexi Hergeth, John Harrington, Tim Petty, Jordan Luzader, Kyle Pysher

WELCOME AND INTRODUCTIONS

- **Remarks from Chair** - Welcomed the committee members and introduced the guests and proxies and explained the results of the previously tabled and discussed ENG 202 and ENG 203. Rudi informed the committee about the decision reached for these two courses. The chair also informed the committee the University College
- **Remarks from OUCCAS/DASA**- None.
- **Approval of the Minutes from October 23rd 2019** – Approved Unanimously
 - Discussion: Member Marta Klesath moved to approve.

NEW BUSINESS

- **Consent Agenda** - Approved Unanimously
Discussion: Member Marta Klesath moved to approve. Member asked about the policy on having minor actions for courses without complete course records. Lexi Hergeth responded this has been accepted in the past.
- **SLC 401 Independent Study in Leadership Theory Application**- Tabled abstentions from Gary Blank and Tania Allen.
Discussion: Member Peggy Domingue presented the new course action. Reviewer indicated the DRO statement is incorrect and indicated this course is a duplicate of a course from CALS and raised concerns. Motion to amend the motion from approve to approve pending the DRO statement, before voting the committee discussed if the amendment AEE 490 among other courses are possible duplications. Member asked if the AEE courses are specific to CALS students, the reviewer indicated this is not limited to CALS students. Members discussed how a tabled vote would be more appropriate. Motion to amend the motion to tabled consultations with the CALS department.
Consultation and DRO update are needed to fulfill tabled requirements before returning to the committee for review.
- **MUT Prefix Proposal**- Approved Unanimously
Discussion: Member Annie Carlson Welch presented the action. Member asked if there has to be a minimum number of courses to have a prefix. Members discussed if it is better to have the prefix approved before the courses, members confirmed this is the best procedure.
- **Landscape Architecture Minor (12LND)** - Approved with Suggestions
Discussion: Member Kristen Schaffer presented the minor action. Reviewer brought attention to the application process and contact information saying the “college of design” scheduling officer. Member made a suggestion to include more inclusive language about students completing the minor in the semester in which they are projected to graduate.
- **AEC 424 Marine Fisheries Ecology**- Approved with Suggestions
Discussion: Member Melissa Merrill presented the new course action. Reviewer commented that the syllabus is missing the policy, rules and regulations links provided at the bottom of the syllabus regulation page. Reviewer expressed surprise that there was no language about attendance at the field. Another member brought attention to the grading indicating there Member asked if there should be a statement on safety. Members confirmed that the PRR block can be provided throughout the syllabus, not in a block at the end. Reviewer indicated the syllabus is fine. Members agreed that the attendance for the fieldtrips has a link to the university attendance policy. Members asked if the attendance is okay, Lexi responded this is up to the committee and that the policy is that students should be able to tell how to earn full points toward their total grade. Members made a suggestion to provide

more information about participation during field trips.

➤ **MEA 369 Life on Earth: Principles of Paleontology- Approved Pending**

Discussion: Member Marta Klesath presented the course action as approved pending the confirmation that the field trips are not required. Presenter indicated this is how the syllabus reads, however, if students are required to attend the field trips the course should be tabled to provide clarification that the field trips are required. Member indicated the description indicates field trips are required, but the transportation statement indicates that field trips out of standard class time are optional. Members indicated that if the field trips are contained within the 50 minute period this can move forward, if non-standard class time field trips are required, this would be tabled and rolled back to the college for clarification.

➤ **Business Analytics Honors Program - Approved Unanimously**

Discussion: Member John Kuzenski presented the curricular action and introduced guest Jason DeRousie.

➤ **ENG 493 Special Topics in Rhetoric and Professional Writing- Approved with Suggestions**

Discussion: Member John Kuzenski presented the course action.

Members confirmed the October 1st indication is to not allow "see syllabus" in the CIM record.

Member expressed concern about having specific evaluation methods and Student Learning outcomes for a special topics course. Some members felt the outcomes were vague enough for a special topics course.

*Members expressed serious concern about having topic outlines and evaluation methods and asked if there could be an exception for special topics courses that would have different topic outlines for each section offering. Bret indicated that special topics are used to try new courses before becoming a permanent course.

Bret indicated he has no issue speaking with the associate deans looking at the making exceptions for special topics permanent course shells. Special topics need to have freedom to make it appropriate to discipline. Member brought attention to the fact that there are 3 special topics in English, in linguistics, in Rhetoric and Professional Writing, and one other, created to meet needs within the discipline, which other departments don't require.

Member asked if for special topics there could be examples from an offering instead of a separate schedule of topics for the CIM record. Members discussed if a component type is different a special topic course would need to be created with that component type.

Bret Smith encouraged the committee to discuss and recommend particular types of classes that may need to be considered as shells, across the board. Bret explained how SACSOCS reviews syllabi and compared to course records. Bret indicated this committee should provide a recommendation for how to handle special topics courses. The provost's office feels there needs to be some way that the courses are taught so that there is not one assignment for the total grade, members asked if there is a policy against having one grade determine the final course grade. Bret and Lexi explained that this is more about how the component types are defined.

Bret explained that if someone were to put "see syllabus" that would mean whatever is in the syllabus is how the course standard is defined. Are we meeting the SACSOCS requirements and is this meeting the university regulations and best practices. Bret and the members confirmed that syllabi are specific to the instructor, where this committee and CIM records should determine if there is enough information that we can insure a quality of instruction and connection to content for the overall degree plan.

Currently, the syllabus is tied with the course record. If approved the CIM record becomes the official record for the course, and the department and college would be responsible for ensuring the syllabus is a reflection of the CIM record.

Members discussed this action in particular, what works well for regular courses is not working for special topics courses. At the university level, a special topic course in CIM needs.

For this action: Suggestion to shift the evaluation methods for changes and putting "Topics for Rhetoric and Professional Writing" as the topic and "Weeks 1-16" in the time devoted to each topic in the CIM record. Presenter indicated that changing the evaluation methods and topic would be fine for the department and the college. Members discussed if they should table or approve the action.

Registration and Records provided inside to curricula that maybe impacted by a specific special topic requirement, meaning the course could need this much specification for a special topic course.

Is this the framework they want the special topic course to be? Members confirmed if the college requests to have the course rolled back, this can be done at the college's choice.

➤ **SOC 211 Community and Health- Approved Pending**

Discussion: Member Daniel Gruehn presented the new course action. Reviewer brought attention to grading method indicating that standard rounding will apply and a statement from DELTA indicating that "I will not accept any excuses unless Moodle goes down during the assessment" doesn't include some potential issues such as power outages and to be more inclusive. Motion to amend the motion from approved to approve pending the inclusion of additional information making the statement more inclusive.

Discussion:

Meeting adjourned at 2:24 pm

Respectfully submitted by Lexi Hergeth



Request to Establish New Academic Degree Program

The following approvals must be obtained prior to sending the Request to Establish a New Academic Degree Program to the UNC System Office.

Institution _____ **North Carolina State University** _____

Degree Program Title (e.g. M.A. in Biology) _____ **B.S. in Music Technology** _____

Reviewed and Approved By (Title)

Provost:

Faculty Senate Chair (if applicable):

Undergraduate or Graduate Dean (if applicable):

Academic College Dean:

Department Chair:

Program Director/Coordinator:

New Academic Program Process

New academic programs are initiated and developed by the faculty members. Approval of the Request to Establish a New Academic Degree Program must be obtained from department chairs and college deans or equivalent administrators before submission to the UNC System Office review.

Directions: Please provide a succinct, yet thorough response to each section. Obtain the Provost's signature and submit the proposal to the UNC System Vice President for Academic Program, Faculty, and Research, for review and approval by the UNC System Office. Once the Request to Establish is approved, UNC System Office staff can submit the proposal for review and approval by the UNC Board of Governors.

Request to Establish a New Academic Degree Program

Institution	North Carolina State University
Joint Degree Program (Yes or No)? If so, list partner campus.	No
Degree Program Title (e.g. M.A. in Biology)	B.S. in Music Technology
CIP Code and CIP Title (May be found at National Center for Education Statistics)	50.0913 – Music Technology
Require UNC Teacher Licensure Specialty Area Code (Yes or No). If yes, list suggested UNC Specialty Area Code(s).	No
Proposed Delivery Mode (campus, online, or site-based distance education). Add maximum % online, if applicable.	Campus
Proposed Term to Enroll First Students (e.g. Spring 2019)	Fall 2020

Do the following sections of your previously submitted and approved Letter of Intent to Develop a New Academic Degree Program document require any change or updated information? If yes, note the items and explain.

Category	Yes or No	Explanation (if applicable)
SACSCOC Liaison Statement	No	
Review Status (campus bodies that reviewed and commented on Letter of Intent)	No	
Program Summary	No	
Student Demand	No	
Societal Demand	No	

I. Program Planning and Unnecessary Duplication:

- a. List all other public and private four-year institutions of higher education in North Carolina currently operating programs similar to the proposed new degree program, including their mode of delivery. Show a four-year history of enrollments and degrees awarded in similar programs offered at other UNC institutions (using the format below for each institution with a similar program). Programs at UNC institutions may be found on the UNC System [website](#).

Currently, only one institution in the UNC system, UNC-Asheville, offers a major in the most relevant CIP code (50.0913- Music Technology). The proposed program, while employing the same CIP code, differs greatly in design and does not duplicate or compete with the UNC-Asheville program. The major at UNC-Asheville, also titled as a Bachelor of Science in Music Technology, is limited to audio mixing and recording and requires only limited interdisciplinary study, predominantly in physics, with the intent of producing students who “learn how to professionally mix and record music.” In contrast, the proposed program intends to integrate a broad range of musical styles, performance practices, and creative projects with the design, development, and implementation of advanced music technologies. The UNC-Asheville program is site-based.

Institution	UNC- Asheville			
Program Title	BS in Music Technology			
	2017-2018	2016-2017	2015-2016	2014-2015
Enrollment	33	37	31	29
Degrees Awarded	14	17	11	14

- b. Describe what was learned in consultation with other programs regarding their experience with student demand and job placement. Indicate how their experiences influenced your enrollment projections.

As noted in the Intent to Plan document the proposed program represents an emerging sub-discipline within music. While there are a number of programs that have employed the music technology CIP code, only a few currently offer curricula that extend beyond audio engineering and seek to prepare graduates to design, develop, and implement advanced music technologies. Among these, the Bachelor of Music (BM) in Music Technology in the Department of Music and Performing Arts Professions, Steinhardt School, at New York University has approximately 100 music technology majors and entering classes average 32 students. The Bachelor of Science in Music Engineering Technology at the Frost School of Music, University of Miami (FL), and the Bachelor of Science in Music Technology program in the Department of Music and Arts Technology at Indiana University-Purdue University Indianapolis both have an average of 70-80 total undergraduate music technology majors. The new Bachelor of Science of Music Technology begun in the spring semester of 2016 at Georgia Tech exceeded all of its enrollment projections and already has more than 75 majors. The program most closely related to our proposed curriculum and a leader in this emerging discipline is the Bachelor of Science in Music Technology at Georgia Tech. It currently reports a 94% employment rate for its graduates within four months of graduation. The University of Miami’s program reports that 90% of its graduates have secured their

postgrad plans (employment or graduate school) within six months of degree completion. This data along with current student interest data at NC State was used as the basis for our enrollment projections.

c. Admission. List the following:

- i. Admissions requirements for proposed programs (indicate minimum requirements and general requirements).

Admission to this degree program will utilize the common or coalition application employed by NC State and general criteria set by admissions for NC State and the UNC System including:

- High school diploma or equivalent
- Six course units in language, including
 - four units in English emphasizing grammar, composition, and literature, and
 - two units of a language other than English
- Four course units of mathematics, in any of the following combinations
 - algebra I and II, geometry, and one unit beyond algebra II,
 - algebra I and II, and two units beyond algebra II, or
 - integrated math I, II, and III, and one unit beyond integrated math III
- Three course units in science, including
 - at least one unit in a life or biological science (for example, biology),
 - at least one unit in physical sciences (for example, physical science, chemistry, physics), and
 - at least one laboratory course
- Two course units in social studies, including one unit in U.S. history. Students who do not have the unit in U.S. history may be admitted on the condition that they pass at least three semester hours in that subject by the end of the sophomore year.

Admission to this new degree program for incoming freshmen and transfer students will meet the competitive standards for all programs at NC State University and applications will be reviewed utilizing a 'holistic approach' including leadership, service activities, interest in the major, individual determination, and others.

ii. Documents to be submitted for admission (listing)

- SAT or ACT plus Writing
- High school transcript
- Official college transcript(s) if applying as a transfer student
- Portfolio representing music activity and ability

d. Degree requirements. List the following:

- i. Total hours required. State requirements for Major, Minor, General Education, etc.

The major will require 120 credit hours for completion consisting of 88 core credit hours, 11 credit hours in one of two pathways, and an additional 21 hours in General education requirements. Please see the attached list of

complete program requirements.

- ii. Other requirements (e.g. residence, comprehensive exams, thesis, dissertation, clinical or field experience, “second major,” etc.).

None

- e. Enrollment. Estimate the total number of students that would be enrolled in the program during the first year of operation and in each delivery mode (campus, online, site, etc.)

	Campus	Online	Site	Full-Time	Part-Time
Year 1	10	0	0	10	0
Year 4	96	0	0	96	0

- f. For graduate programs only, please also answer the following:

Not applicable

- g. For all programs, provide a degree plan showing the sequence of courses to be taken each year. List courses by title and number and indicate those that are required. Include an explanation of numbering system. Indicate new courses proposed. A possible format is offered below as an example. If your institution uses a different format that provides the required information, it may be submitted instead.

The proposed curriculum for BS in Music Technology includes two pathways, one in Electronics and Circuits (EC) and one in Software and Digital Hardware (SDH). Following the formatting required by NC State, a listing of curricular requirements (Format B) and a semester-by-semester display (Format A) for each pathway is attached. New courses for the proposed program are listed again below.

Course Number	Course Title	Required (Y/N)	Brief Description
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MUS 203	Theory & Musicianship III	Y	Continuation of existing theory & musicianship sequence addressing more advanced musical language concepts
MUS 204	Theory & Musicianship III LAB	Y	Continuation of existing theory & musicianship labs addressing more advanced aural comprehension of musical processes.
MUS 253	Theory & Musicianship IV	Y	Continuation of existing theory & musicianship sequence addressing more advanced musical language concepts
MUS 254	Theory & Musicianship IV LAB	Y	Continuation of existing theory & musicianship labs addressing more advanced aural comprehension of musical processes.
MUT 303	Introduction to Audio Technology I	Y	Fundamentals of analog audio technology
MUT 304	Introduction to Audio Technology II	Y	Fundamentals of digital audio technology
MUT 315	Music Perception & Cognition	Y	Addresses acoustics and psychoacoustics - human perception of sound and music
MUT 403	Music Recording & Mixing	Y	Addresses concepts and techniques of sound reinforcement, recording, and design.
MUT 431	Music Technology I	Y	Software-based analysis of digital music signals and musical content analysis.
MUT 432	Music Technology II	Y	Addresses elements of digital audio signal processing and their application to musical analysis problems of modeling and synthesis
MUT 461	Music Technology Senior Project I	Y	Part one of two-semester capstone course focused on the planning, designing, and completing of a music technology product design project.
MUT 462	Music Technology Senior Project II	Y	Part two of two-semester capstone course focused on the planning,

			designing, and completing of a music technology product design project.
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Course numbering is assigned as follows:

- 100-299 courses are intended primarily for freshman and sophomores
- 300-399 courses are intended primarily for juniors and often require prerequisites
- 400-499 courses are intended primarily for seniors and typically require prerequisites

II. Faculty

- a. (For undergraduate and master's programs) List the names, ranks and home department of faculty members who will be directly involved in the proposed program. The official roster forms approved by SACSCOC may be submitted. For master's programs, state or attach the criteria that faculty must meet in order to be eligible to teach graduate level courses at your institution.

NAME	RANK	HOME DEPARTMENT
Peter Askim	Associate Teaching Professor	Music
Gary Beckman	Teaching Professor	Music
Chris Branam	Lecturer	Music
Paul Garcia	Teaching Professor	Music
Olga Kleiankina	Associate Teaching Professor	Music
Tom Koch	Associate Teaching Professor	Music
Jonathan Kramer	Teaching Professor	Music
Nathan Leaf	Teaching Professor	Music
Daniel Monek	Professor	Music/Industrial Design
Wes Parker	Teaching Professor	Music
Jennifer Beattie	Lecturer (0.75)	Music
Kathryn Brown	Lecturer (0.75)	Music

- b. (For doctoral programs) List the names, ranks, and home department of each faculty member who will be directly involved in the proposed program. The official roster forms approved by SACSCOC may be submitted. Provide complete information on each faculty member's education, teaching and research experience, research funding, publications, and experience directing student research including the number of theses and dissertations directed.

Not applicable

- c. Estimate the need for new faculty for the proposed program over the first four years. If the teaching responsibilities for the proposed program will be absorbed in part or in whole by the present faculty, explain how this will be done without weakening existing programs.

Existing NC State faculty already teach the majority of courses included in this proposal. In order to cover the new MUT courses a currently open faculty line will be used to hire a music technology faculty member beginning

in the 2020-21 academic year and one additional music technology position will be required by year three of the program. Additionally, a 0.75 FTE position in arts entrepreneurship should be increased to a full-time position. New MUS course load can at present be absorbed into current faculty loads, but will likely impact administrative support roles (associate department head) for at least one faculty member. Depending on future enrollment growth, additional funds may be required for an additional full-time position or part-time faculty support.

- d. Explain how the program will affect faculty activity, including course load, public service activity, and scholarly research.

Since most courses already exist, influence on faculty activities is anticipated to be minimal. Additionally, the popularity of this major and the unique ability of this program to attract new and non-traditional students to music will enrich our current offerings as well as enhance the visibility of the Department of Music and NC State University. It should be noted that, with the exception of the department head, all of the faculty in the Department of Music do not currently have access to a tenured rank. The addition of majors into the department will increase the need and desire to offer this option to appropriately reflect the likely increase of research and creative activity, provide equity with other academic units, and to be competitive in retaining current and recruiting future faculty members.

III. Delivery Considerations. Provide assurances of the following (not to exceed 250 words per lettered item):

- a. *Access* (online, site-based distance education, and off-campus programs).
Students have access to academic support services comparable to services provided to on-campus students and appropriate to support the program, including admissions, financial aid, academic advising, delivery of course materials, and placement and counseling.
- b. *Curriculum delivery* (online and site-based distance education only).
The distance education technology to be used is appropriate to the nature and objectives of the program. The content, methods and technology for each online course provide for adequate interaction between instructor and students and among students.
- c. *Faculty development* (online and site-based distance education only).
Faculty engaged in program delivery receive training appropriate to the distance education technologies and techniques used.
- d. *Security* (online and site-based distance education only).
The institution authenticates and verifies the identity of students and their work to assure academic honesty/integrity. The institution assures the security of personal/private information of students enrolled in online courses.

Not applicable

IV. Library

- a. Provide a statement as to the adequacy of present library holdings for the proposed program to support the instructional and research needs of this program. If applicable, state how the library will be improved to meet new program requirements for the next four years. The explanation

should discuss the need for books, periodicals, reference material, primary source material, etc. What additional library support must be added to areas supporting the proposed program?

The NC State University Libraries' current holdings are adequate for both the MUS core and the ECE core of courses. In addition, the Libraries is adequately resourced to provide reasonable and/or foreseeable materials that may become necessary over time, thanks in part to the Ellen Black Winston Endowment, which provides funds to enhance the Sanford R. Winston Music Collection. This endowment is broad enough in its intent to be used in support of the new degree and MUT courses, as well as continuing to support the existing courses offered in the department.

In addition, the Department of Music already has a collaborative relationship with the Libraries. Our digital audio workstations (DAWs) have the same software and hardware as the 11 reservable DAWs available to students in the Libraries. The department has also partnered with the Libraries in support of its State of Sound program of collecting, sharing, and hosting events focused on music and other audio works and in offering our music technology summer camps. The Libraries has made significant investments in music-related technologies that students can borrow through its extensive Technology Lending Service, which will be a valuable resource for students in this new program.

The Libraries is a member of the Triangle Research Libraries Network (TRLN), a consortium of research libraries at NC State, Duke University, the University of North Carolina at Chapel Hill (UNC-CH), and North Carolina Central University. As the second largest academic research collection in the country with combined collections of over 23 million volumes, TRLN is renowned for its research collections and excellent services. NC State faculty and students may draw upon the TRLN collections readily, either at those libraries or upon request for rapid delivery on interlibrary loan through the Libraries' Tripsaver service. Tripsaver also fulfills requests for materials and information from other library collections and sources worldwide.

Both UNC-CH and Duke University have extensive Music libraries dedicated to supporting Music degree programs, and the resources and services of those libraries will be available to faculty and students in the new NC State program. The UNC-CH Music Library is one of the top academic music libraries in the country, offering a collection of books, scores, audio and video recordings, and rare materials, as well as access to major music research databases and thousands of streamed audio and video recordings. The Music Library at Duke provides similarly extensive collections and a series of Music Research Guides covering a range of topics such as "Digital Musicology," for example.

V. Facilities and Equipment

- a. Describe facilities available for the proposed program.

The Department of Music is currently housed in two facilities on NC State's main campus. The Price Music Center provides three large ensemble rehearsal rooms (including one which doubles as a small recital space), 12 student practice rooms, two small ensemble rehearsal rooms, two applied teaching studios, instrument and library storage, and a number of faculty and administrative offices/teaching studios. The Department also currently occupies the south wing of Broughton Hall which includes three fully-equipped classrooms (including one 80-seat lecture hall), a digital piano lab, a 24-station computer lab/classroom, three digital audio workstation (DAW) studios, a piano teaching studio, and several faculty and administrative offices. The unit shares larger performance spaces, appropriate for ensembles, with University Theatre and other programs through Arts NC State.

- b. Describe the effect of this new program on existing facilities and indicate whether they will be adequate, both at the commencement of the program and during the next decade.

The existing facilities will be adequate at the onset of the proposed program, but since they are aging buildings they will become less so as time passes and enrollment increases.

- c. Describe information technology and services available for the proposed program.

See answer below

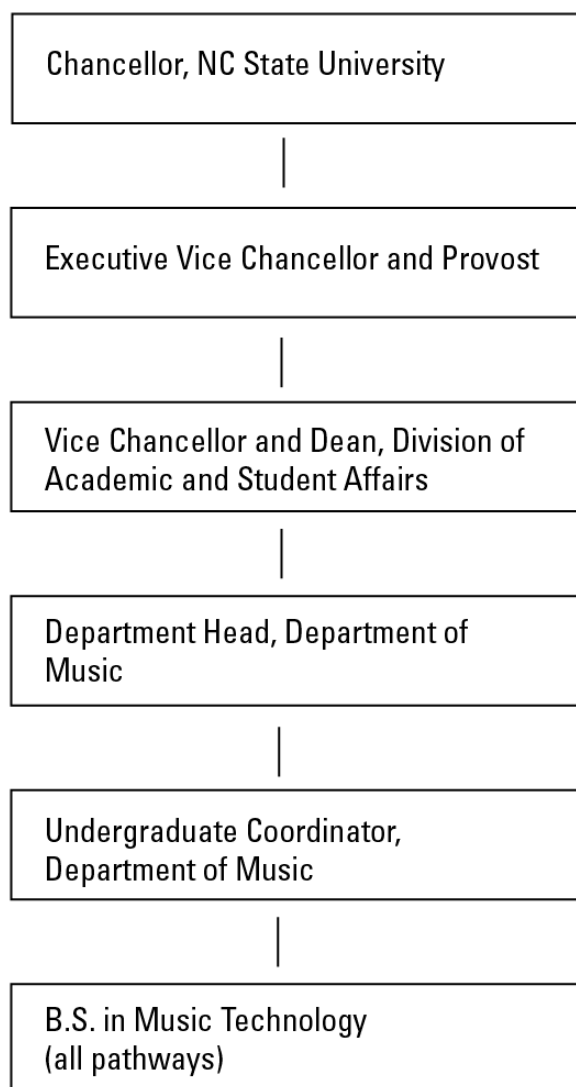
- d. Describe the effect of this new program on existing information technology and services and indicate whether they will be adequate, both at the commencement of the program and during the next decade.

As a part of already existing offerings, the university, college, and department have invested significantly in technology resources that will support the onset of the proposed program. Some investment in specialized equipment and technology will be required as the program develops. The proposed program will have minimal impact on existing information technology and services and these are sufficient for the next decade.

VI. Administration

- a. Describe how the proposed program will be administered, giving the responsibilities of each department, division, school, or college. Explain any inter-departmental or inter-unit administrative plans. Include an organizational chart showing the "location" of the proposed new program.

As a degree program at NC State University the Music Technology major will be located on campus and administered by the Provost and Executive Vice Chancellor. As an academic department in University College housed within the Division of Academic and Student Affairs, the Interim Dean of University College, Mr. Bret Smith, and the Department of Music Head, Dr. Daniel Monek, will be ultimately responsible for working collaboratively to advertise and recruit for the program, advise students, and evaluate the program. Dr. Tom Koch, Associate Department Head, will serve as Undergraduate Coordinator. Student advising will be distributed among appropriate faculty members and supervised by the department head and associate department head.



VII. Additional Program Support

- a. Will additional administrative staff, new master's program graduate student assistantships, etc. be required? If so, please briefly explain in the space below each item, state the estimated new dollars required at steady state after four years, and state the source of the new funding and resources required.

No additional administrative staff, etc. will be required for the proposed program.

VIII. Accreditation and Licensure

- a. Where appropriate, describe how all licensure or professional accreditation standards will be met, including required practica, internships, and supervised clinical experiences.

Every effort has been made to align the proposed program with the appropriate accreditation standards for music programs that include significant studies in electrical/computer engineering.

- b. Indicate the names of all accrediting agencies normally concerned with programs similar to the one proposed. Describe plans to request professional accreditation.

Programs in the discipline of music may be accredited through the National Association of Schools of Music (NASM). Furthermore, a statement of mutual understanding exists between NASM and the Accreditation Board for Engineering and Technology (ABET, Inc.) concerning curricular programs that combine studies in music and computer/electrical engineering. As soon as the proposed program meets the minimum threshold (25 enrolled majors) for application for accreditation from NASM, it will begin the process.

- c. If the new degree program meets the SACSCOC definition for a substantive change, what campus actions need to be completed by what date in order to ensure that the substantive change is reported to SACSCOC on time?

This proposal will be reviewed by the NC State Substantive Change Review Team (SCRT) and they will determine any required action regarding SCASCOC reporting.

- d. If recipients of the proposed degree will require licensure to practice, explain how program curricula and title are aligned with requirements to “sit” for the licensure exam.

Not applicable

IX. Supporting Fields

- a. Discuss the number and quality of lower-level and cognate programs for supporting the proposed degree program. Are other subject-matter fields at the proposing institution necessary or valuable in support of the proposed program? Is there needed improvement or expansion of these fields? To what extent will such improvement or expansion be necessary for the proposed program?

All lower-level courses (MA-Math, PY-Physics, and D-Design), cognate programs (humanities, interdisciplinary studies, social sciences, health and exercise studies, English, and additional breadth), and subject-matter fields (ECE-Electrical and Computer Engineering and MUS-Music) are in place and sufficient for this degree program. It is not anticipated that the number of majors in the proposed program will increase enrollments in any of these areas in a burdensome way.

X. Additional Information. Include any additional information deemed pertinent to the review of this new degree program proposal.

No additional information required

XI. Budget

Program revenue projections have been developed based on enrollments from other institutions (see I.b. above), a projected program cohort capacity of 24-26, and data from the program launch at Georgia Tech (their B.S. in Music Technology program launched in the spring semester of 2017). Summary figures below highlight estimated institutional revenue generation based on projected enrollment until steady state in year five and projected credit hours per year as derived from the semester-by-semester plan. All revenue estimates are based on Category III funding levels of \$240.77 per credit hour. In addition to start-up marketing and equipment needs, the program will establish a memo of understanding with the Department of Electrical and Computer Engineering in the College of Engineering to aid in covering cost for labs and as noted above (see II.c.) will require the addition of one full-time (1.0 FTE) faculty position by year three of the program and the increase of one 0.75 FTE faculty position to 1.0 FTE by year two.

YEAR	Estimated Total Enrollment	Estimated Credit Hour Generation	Estimated Total Revenue
1	10	340	\$81,861.80
2	30	1020	\$245,585.40
3	50	1640	\$349,862.80
4	70	2160	\$520,063.20
5	90	2728	\$656,820.56

YEAR	Estimated MUS/MUT Credit Hour Generation	Estimated MUS/MUT Revenue*
1	140	\$33,707.80
2	480	\$115,569.60
3	800	\$192,616.00
4	1010	\$243,177.70
5	1260	\$303,370.20

*50% of generated revenue is returned to the college from the Provost's office

XII. Evaluation Plans

- What student learning outcomes will be met by the proposed program and how will student proficiency be measured? These items may be updated as necessary to meet student and program needs.

Program Student Learning Outcomes	Measurement Instrument	Criteria for Proficiency (score, percentage, level of performance, etc.)
Hear, analyze, and interpret the elements of music such as rhythm, melody, harmony, structure, timbre, and texture.	MUS 103, 153, 203, 253 MUS 104, 154, 204, 254 MUS 107,207	Successful completion of courses, 2.5 overall GPA in courses required for the major.
Interpret compositional processes and aesthetic properties of style and to	MUS 103, 153, 203, 253 MUS 104, 154, 204, 254	Successful completion of courses, 2.5 overall GPA in courses required for the

determine the ways these shape and are shaped by artistic and cultural forces.	MUS 200, 240	major.
Identify musical literature from a diverse selection of cultures, genres, and eras.	MUS 103, 153, 203, 253 MUS 200,240 MUS 193, 293, Ensemble requirement	Successful completion of courses, 2.5 overall GPA in courses required for the major.
Develop and defend musical judgments.	MUS 193, 293 MUS 103,153, 203,253 MUS 200, 240 MUS 193, 293	Successful completion of courses, 2.5 overall GPA in courses required for the major.
Identify the roles and functions of effective solo and ensemble musicians through engagement in solo and ensemble performance.	MUS 193, 293 MUS 107, 207 Ensemble Requirement	Successful completion of courses, 2.5 overall GPA in courses required for the major.
Evaluate current technologies, technological principles, and their applications to music.	MUT 303, 304, 403, 431, 432 ECE 109, 200, 209, ECE Pathway	Successful completion of courses, 2.5 overall GPA in courses required for the major.
Explain the evolution of music technology, its impact on music and culture, an how it continues to influence music and technology.	MUS 200, 240 MUT 303, 304, 315, 431, 432	Successful completion of courses, 2.5 overall GPA in courses required for the major.
Synthesize core concepts of music and electrical/computer engineering to solve problems in music technology.	MUT 431, 432, 461, 462	Successful completion of courses, 2.5 overall GPA in courses required for the major.
Develop solutions that consider desirability, usability, and effectiveness for the field of music.	MUT 303, 304, 403, 431, 432, 461, 462	Successful completion of courses, 2.5 overall GPA in courses required for the major.

- b. The plan and schedule to evaluate the proposed new degree program prior to the completion of its fourth year of operation (to include types of measurement, frequency, and scope of program review).

The program objectives and student learning outcomes will be evaluated annually. The performance metrics (as described in section XII.a.) will be analyzed after the fourth and the eighth year. Additionally, once every 10 years, a team of peers as a part of the department's review will conduct an external review of the degree program.

XIII. Attachments. Attach the final approved Letter of Intent as the first attachment following this document.

The following attachment are provided:

Appendix I: Final Approved Letter of Intent

Appendix II: NC State Format B List of Curricular Requirements

a. BS in Music Technology: Electronics & Circuits Pathway (24MUTEC)

b. BS in Music Technology: Software & Digital Hardware Pathway (24MUTSDH)

Appendix III: NC State Format A Semester-by-Semester Display

a. BS in Music Technology: Electronics & Circuits Pathway (24MUTEC)

b. BS in Music Technology: Software & Digital Hardware Pathway (24MUTSDH)

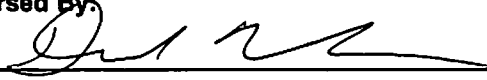
This proposal to establish a new program has been reviewed and approved by the appropriate campus committees and authorities.

Position Title	Signature	Date
Chancellor		
Chancellor (Joint Partner Campus)		
Provost		

North Carolina State University

This request has been reviewed and approved by the appropriate campus committees and authorities.

Endorsed By:


Head, Department/Program

10/31/19
Date

Recommended By:


Chair, College Curriculum Committee

11/4/19
Date

Endorsed By:

College Dean

Date

Recommended By:

Vice Provost, DELTA (if DE degree/certificate)

Date

Recommended By:

Chair, University Courses & Curricula Committee

Date

Approved By:

Dean, (DASA or the Graduate School)

Date

Recommended By:

Dean's Council

Date

Approved By:

Executive Vice Chancellor and Provost

Date

Approved By:

Chancellor

Date

FORMAT A
(SEMESTER-BY-SEMESTER CURRICULUM DISPLAY)

Indicate display status: Current: Proposed: X Proposed Effective Semester: Fall 2020

Degree/Plan Title: BS Music Technology

Concentration/Subplan Title: Electronics and Circuits

Plan SIS Code: 24MUTBS

Subplan SIS Code: 24MUTEC

New Degree Audit required? (Y or N) Yes

Critical Path Courses - Identify using the code (CP) which courses are considered critical path courses which represent specific major requirements that are predictive of student success in a given program/plan. Place the (CP) next to the credit hours for the course.

FRESHMAN YEAR			
FALL SEMESTER	CREDITS	SPRING SEMESTER	CREDITS
MUS 103 Theory and Musicianship I	3	MUS 153 Theory & Musicianship II	3
MUS 104 Theory and Musicianship Lab I	1	MUS 154 Theory & Musicianship Lab II	1
MUS 107 Class Piano I	1	MUS 207 Class Piano II	1
MUS 193 Applied Music Lessons I	1	MUS 193 Applied Music Lessons I	1
Approved Ensemble	1	Approved Ensemble	1
MA 141 Calculus I ¹	4	MA 241 Calculus II ¹	4
ENG 101 Academic Writing & Research	4	PY 205 Physics for Engineers & Scientists I ¹	3
HESF 10* HES Fitness Elective	1	PY 206 Physics for Engineer & Scientists Lab I ¹	1
		ECE 109 Introduction to Computer Systems ²	3
	Total:16		Total:18
SOPHOMORE YEAR			
FALL SEMESTER	CREDITS	SPRING SEMESTER	CREDITS
MUS 203 Theory & Musicianship III	3	MUS 200 Understanding Music: Global Perspectives	3
MUS 204 Theory & Musicianship Lab III	1	MUS 253 Theory & Musicianship IV	3
MUS 293 Applied Music Lessons II	1	MUS 254 Theory & Musicianship Lab IV	1
Approved Ensemble	1	MUS 293 Applied Music Lessons II	1
PY 208 Physics for Engineers & Scientists II ¹	3	ECE 200 Introduction to Signals, Circuits, & Systems ²	4
PY 209 Physics for Engineer & Scientists Lab II ¹	1	MUT 304 Intro to Audio Technology (Digital)	3
ECE 209 Computer Systems Programming ²	3	D 100 Design Thinking I: Methods and Processes	3
MUT 303 Intro to Audio Technology (Analog)	3		
	Total:16		Total:18
JUNIOR YEAR			
FALL SEMESTER	CREDITS	SPRING SEMESTER	CREDITS
MUS 240 Introduction to Music Industry	3	EMA 110 Introduction to Arts Entrepreneurship	3
Approved Ensemble	1	MUT 432 Music Technology II	3
ECE 211 Electric Circuits ²	4	ECE 302 Microelectronics	4
MUT 403 Recording & Mixing	3	GEP Requirement	3
MUT 431 Music Technology I	3		
HES_ *** Health & Exercise Study Course	1		
	Total:15		Total:13
SENIOR YEAR			
FALL SEMESTER	CREDITS	SPRING SEMESTER	CREDITS
MUT 461 Music Technology Senior Project I	3	MUT 462 Music Technology Senior Project II	3
ECE 403 Electronics Engineering	3	MUT 315 Music Perception and Cognition	3
GEP Requirement	3	GEP Requirement	3
GEP Requirement	3	GEP Requirement	3
	Total:12		Total:12
Minimum Credit Hours Required for Graduation*: 120			

Major/Program Footnotes:

1 Grade of C or better required

2 Grade of C- or better required

***General Education Program (GEP) requirements and GEP Footnotes:**

To complete the requirements for graduation and the General Education Program, the following category credit hours and co-requisites must be satisfied.

University approved GEP course lists for each of the following categories can be found at <http://www.ncsu.edu/uap/academic-standards/gep/courselists/index.html>.

- A. **Mathematical Sciences** (6 credit hours – one course with MA or ST prefix)
*Choose from the University approved GEP Mathematical Sciences course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: **MA141, MA241***
- B. **Natural Sciences** (7 credit hours – include one laboratory course or course with a lab)
*Choose from the University approved GEP Natural Sciences course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: **PY205, PY206, PY208, PY209x***
- C. **Humanities** (6 credit hours selected from two different disciplines/course prefixes)
Choose from the University approved GEP Humanities course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement:
- D. **Social Sciences** (6 credit hours selected from two different disciplines/course prefixes)
Choose from the University approved GEP Social Sciences course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement:
- E. **Physical Education/Healthy Living** (2 credit hours – at least one 100-level Fitness and Wellness Course)
Choose from the University approved GEP Physical Education/Healthy Living course list.
- F. **Additional Breadth** - (3 credit hours to be selected from the following checked University approved GEP course lists)
XHumanities/Social Sciences/Visual and Performing Arts or **X**Mathematical Sciences/Natural Sciences/Engineering
- G. **Interdisciplinary Perspectives** (5-6 credit hours)
*Choose from the University approved GEP Interdisciplinary Perspectives course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: **MUS200, EMA110, D100,***
- H. **Introduction to Writing** (4 credit hours satisfied by completing ENG 101 with a C- or better)

The following **Co-Requisites** must be satisfied to complete the General Education Program requirements:

- I. **U.S. Diversity** (USD)
Choose from the University approved GEP U.S. Diversity course list or choose a course identified on the approved GEP course lists as meeting the U.S. Diversity (USD) co-requisite. The following course(s) completed as part of the Major requirements may fulfill this requirement:
- J. **Global Knowledge** (GK)
*Choose from the University approved GEP Global Knowledge course list or choose a course identified on the approved GEP course lists as meeting the Global Knowledge (GK) co-requisite. The following course(s) completed as part of the Major requirements may fulfill this requirement: **MUS200***
- K. **Foreign Language proficiency** - Proficiency at the FL_102 level is required for graduation.

MAJOR FIELD OF STUDY REQUIREMENTS:		
Required Courses/Groups/ Electives:	Credit Hours	GEP category, if applicable
Indicate if course or course groupings have a C-wall or MGPA requirement and which are considered Critical Path courses – indicate with (CP) next to applic. course.		List GEP category and hours satisfied by a Major requirement
<u>Musicianship Core</u>		
MUS 103 Theory and Musicianship I	3	VPA
MUS 104 Theory and Musicianship Lab I	1	
MUS 107 Class Piano I	1	
MUS 153 Theory and Musicianship II	3	
MUS 154 Theory and Musicianship Lab II	1	
MUS 200 Understanding Music: Global Perspectives	3	IP,GK, VPA
MUS 203 Theory and Musicianship III	3	
MUS 204 Theory and Musicianship Lab III	1	
MUS 207 Class Piano II	1	
MUS 253 Theory and Musicianship IV	3	
MUS 254 Theory and Musicianship Lab IV	1	
<u>Applied Study</u>		
MUS 193 (two semesters)	1,1	
MUS 293 (two semesters)	1,1	
<u>Ensemble Study</u>		
Four semesters of approved ensemble from:	1,1,1,1	
MUS 112 Men’s Choir		
MUS 113 Women’s Choir		
MUS 115 State Chorale		
MUS 121 Raleigh Civic Symphony		
MUS 122 Raleigh Civic Chamber Orchestra		
MUS 134 Wind Ensemble		
MUS 135 Symphonic Band		
MUS 142 Jazz Ensemble II		
MUS 144 Jazz Ensemble I		
<u>Additional Study</u>		
MUS 240 Introduction to Music Industry	3	VPA
EMA 110 Introduction to Arts Entrepreneurship	3	IP
D 100 Design Thinking I: Methods and Processes	3	IP
<u>Math and Science</u>		
MA 141 Calculus I	4	MA
MA 241 Calculus II	4	MA
PY 205 Physics for Engineers & Scientists I	3	NS

PY 206 Physics for Engineers & Scientists I LAB	1	NS
PY 208 Physics for Engineers & Scientists II	3	NS
PY 209 Physics for Engineers & Scientists II LAB	1	NS
<u>Electrical & Computer Engineering Core</u>		
ECE 109 Introduction to Computer Systems	3	
ECE 200 Introduction to Signals, Circuits, & Systems	4	
ECE 209 Computer Systems Programming	3	
<u>Music Technology Core</u>		
MUT 303 Introduction to Audio Technology I	3	
MUT 304 Introduction to Audio Technology II	3	
MUT 315 Music Perception & Cognition	3	
MUT 403 Music Recording & Mixing	3	
MUT 431 Music Technology I	3	
MUT 432 Music Technology II	3	
<u>Capstone</u>		
MUT 461 Music Technology Senior Project I	3	
MUT 462 Music Technology Senior Project II	3	
<u>Concentration Courses/Groups/Electives:</u>		
<u>Electronics & Circuits Concentration</u>		
ECE 211 Electric Circuits	3	
ECE 302 Microelectronics	4	
ECE 403 Electronics Engineering	3	
<u>Free Electives:</u>	0	
Total credit hours under Major Field of Study: <i>Minimum 27 hours required in program area.</i>	98 hours	
COLLEGE REQUIREMENTS:		
<u>Orientation Course(s):</u>	0	
<u>Other:</u>	0	
Total credit hours under College Requirements:	0 Hours	

NCSU GENERAL EDUCATION PROGRAM REQUIREMENTS <i>Courses in the Major and/or Minor may also fulfill a General Education requirement; however, a GEP category <u>may not be subset</u> to require a specific course from the category list. Required courses must be listed in the Major/College requirements.</i> Specific courses should not be listed in any of the fields below other than ENG 101.		At least one of the following must be listed: 1 Choose course(s) from the University Approved GEP course list for this category. 2 Minimum requirements are satisfied by Major/College course requirements. 3 Major/College course requirement satisfies X credit hrs of this requirement. Remaining hours required must be chosen from the University Approved GEP course list for the category. 4 Co-requisite is satisfied by a Major/College course requirement. 5 Choose course(s) from the University Approved GEP course lists for the Humanities/ Social Sciences/ Visual & Performing Arts. 6 Choose course(s) from the University Approved GEP course lists for Natural Sciences/Mathematical Sciences.
General Education Program Requirements: <i>Minimum 39-40 hrs</i>	Credit hours	How will the GEP requirement be met? (Choose applicable statement from 1-6 listed above)
Mathematical Sciences (6 credits) (At least 1 course with MA or ST prefix) <i>Course(s) in the Major may double-count to satisfy this requirement and also satisfy either the Global Knowledge or U.S. Diversity co-requisites.</i>	0	(Choose statement 1, 2 or 3) 2
Natural Sciences (7 credits) (At least 1 <i>lab</i> course or course with a <i>lab</i>) <i>Course(s) in the Major may double-count to satisfy this requirement and also satisfy either the Global Knowledge or U.S. Diversity co-requisites.</i>	0	(Choose statement 1, 2 or 3) 2
English 101 (C- or better required) (4 credits)	4	ENG 101
Humanities (6 credits) (Courses from two different disciplines) <i>Course(s) in the Major may double-count to satisfy this requirement and also satisfy either the Global Knowledge or U.S. Diversity co-requisites.</i>	6	(Choose statement 1, 2 or 3) 1
Social Sciences (6 credits) (Courses from two different disciplines) <i>Course(s) in the Major may double-count to satisfy this requirement and also satisfy either the Global Knowledge or U.S. Diversity co-requisites.</i>	6	(Choose statement 1, 2 or 3) 1
Additional Breadth (3 credits) (Choose approach that is <i>different</i> from the approach of the Major) <i>Major/College requirements cannot satisfy this requirement and an AB course cannot be double-counted except in satisfying the Global Knowledge or U.S. Diversity co-requisites.</i>	3	(Choose statement 5 or 6) 1
Interdisciplinary Perspectives (5 credits) <i>Course(s) in the Major may double-count to satisfy this requirement and also satisfy either the Global Knowledge or U.S. Diversity co-requisites.</i>	0	(Choose statement 1, 2 or 3) 2
Health and Exercise Studies (2 credits) (Including one <i>Fitness and Wellness</i> course)	2	Choose course(s) from the University Approved GEP course list for this category.
Total credit hours needed to complete GEP that are <u>not</u> satisfied as part of the Major/College requirements.	21 hours	
GEP Co-Requisites:		Courses taken in the Major, GEP, or Minor may double-count to fulfill the co-requisites. Courses that satisfy the U.S. Diversity or Global Knowledge co-requisite are marked on course lists with a "USD" or "GK" indicator.
U.S. Diversity co-requisite (USD)	n/a	(Choose statement 1 or 4) 1
Global Knowledge co-requisite (GK)	n/a	(Choose statement 1 or 4) 4
Foreign Language Proficiency	n/a	Proficiency at the FL_102 level required.
The following requirements must be satisfied within the College/Program:		Place an X in the credit hour box to indicate below that the requirement is "Satisfied by College/Program Requirements"
Communication in the Major (Advanced Communication)	X	Satisfied by College/Program Requirements
Technology Fluency	X	Satisfied by College/Program Requirements
Total credit hours required to complete Degree: Total must be within 120-128 credit hours.	120 Total hours	As applicable, indicate here the overall GPA requirement for degree completion including course completion: 2.0 GPA

FORMAT A
(SEMESTER-BY-SEMESTER CURRICULUM DISPLAY)

Indicate display status: Current: Proposed: X Proposed Effective Semester: Fall 2020

Degree/Plan Title: BS Music Technology

Concentration/Subplan Title: Software & Digital Hardware

Plan SIS Code: 24MUTBS

Subplan SIS Code: 24MUTSDH

New Degree Audit required? (Y or N) Yes

Critical Path Courses - Identify using the code (CP) which courses are considered critical path courses which represent specific major requirements that are predictive of student success in a given program/plan. Place the (CP) next to the credit hours for the course.

FRESHMAN YEAR			
FALL SEMESTER	CREDITS	SPRING SEMESTER	CREDITS
MUS 103 Theory and Musicianship I	3	MUS 153 Theory and Musicianship II	3
MUS 104 Theory and Musicianship Lab I	1	MUS 154 Theory and Musicianship Lab II	1
MUS 107 Class Piano I	1	MUS 207 Class Piano II	1
MUS 193 Applied Music Lessons I	1	MUS 193 Applied Music Lessons I	1
Approved Ensemble	1	Approved Ensemble	1
MA 141 Calculus I ¹	4	MA 241 Calculus II ¹	4
ENG 101 Academic Writing & Research	4	PY 205 Physics for Engineers & Scientists I ¹	3
HESF 10* HES Fitness Elective	1	PY 206 Physics for Engineer & Scientists Lab I ¹	1
		ECE 109 Introduction to Computer Systems ²	3
	Total:16		Total:18
SOPHOMORE YEAR			
FALL SEMESTER	CREDITS	SPRING SEMESTER	CREDITS
MUS 203 Theory and Musicianship III	3	MUS 200 Understanding Music: Global Perspectives	3
MUS 204 Theory and Musicianship Lab III	1	MUS 253 Theory and Musicianship IV	3
MUS 293 Applied Music Lessons II	1	MUS 254 Theory and Musicianship Lab IV	1
Approved Ensemble	1	MUS 293 Applied Music Lessons II	1
PY 208 Physics for Engineers & Scientists II ¹	3	ECE 200 Introduction to Signals, Circuits, & Systems ²	4
PY 209 Physics for Engineers & Scientists Lab II ¹	1	MUT 304 Intro to Audio Technology II (Digital) ²	3
ECE 209 Computer Systems Programming ²	3	D 100 Design Thinking I: Methods and Processes	3
MUT 303 Intro to Audio Technology I (Analog) ²	3		
	Total:16		Total:18
JUNIOR YEAR			
FALL SEMESTER	CREDITS	SPRING SEMESTER	CREDITS
MUS 240 Introduction to Music Industry	3	EMA 110 Introduction to Arts Entrepreneurship	3
Approved Ensemble	1	MUT 432 Music Technology II	3
ECE 212 Fundamentals of Logic Design ²	3	ECE 3** Software & Digital Hardware Elective	3
MUT 403 Music Recording & Mixing	3	GEP Requirement	3
MUT 431 Music Technology I	3	Free elective	2
HES_ *** Health & Exercise Study Course	1		
	Total:14		Total:14
SENIOR YEAR			
FALL SEMESTER	CREDITS	SPRING SEMESTER	CREDITS
MUT 461 Music Technology Senior Project I	3	MUT 461 Music Technology Senior Project II	3
ECE 3** Software & Digital Hardware Elective	3	MUT 315 Music Perception and Cognition	3
GEP Requirement	3	GEP Requirement	3
GEP Requirement	3	GEP Requirement	3
	Total:12		Total:12
Minimum Credit Hours Required for Graduation*: 120			

Major/Program Footnotes:

1 Grade of C or better required

2 Grade of C- or better required

***General Education Program (GEP) requirements and GEP Footnotes:**

To complete the requirements for graduation and the General Education Program, the following category credit hours and co-requisites must be satisfied.

University approved GEP course lists for each of the following categories can be found at <http://www.ncsu.edu/uap/academic-standards/gep/courselists/index.html>.

- A. **Mathematical Sciences** (6 credit hours – one course with MA or ST prefix)
*Choose from the University approved GEP Mathematical Sciences course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: **MA141, MA 241***
- B. **Natural Sciences** (7 credit hours – include one laboratory course or course with a lab)
*Choose from the University approved GEP Natural Sciences course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: **PY205, PY206, PY208, PY209***
- C. **Humanities** (6 credit hours selected from two different disciplines/course prefixes)
Choose from the University approved GEP Humanities course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement:
- D. **Social Sciences** (6 credit hours selected from two different disciplines/course prefixes)
Choose from the University approved GEP Social Sciences course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement:
- E. **Physical Education/Healthy Living** (2 credit hours – at least one 100-level Fitness and Wellness Course)
Choose from the University approved GEP Physical Education/Healthy Living course list.
- F. **Additional Breadth** - (3 credit hours to be selected from the following checked University approved GEP course lists)
xHumanities/Social Sciences/Visual and Performing Arts or **x**Mathematical Sciences/Natural Sciences/Engineering
- G. **Interdisciplinary Perspectives** (5-6 credit hours)
*Choose from the University approved GEP Interdisciplinary Perspectives course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: **MUS200, EMA110, D100***
- H. **Introduction to Writing** (4 credit hours satisfied by completing ENG 101 with a C- or better)

The following **Co-Requisites** must be satisfied to complete the General Education Program requirements:

- I. **U.S. Diversity** (USD)
Choose from the University approved GEP U.S. Diversity course list or choose a course identified on the approved GEP course lists as meeting the U.S. Diversity (USD) co-requisite. The following course(s) completed as part of the Major requirements may fulfill this requirement:
- J. **Global Knowledge** (GK)
*Choose from the University approved GEP Global Knowledge course list or choose a course identified on the approved GEP course lists as meeting the Global Knowledge (GK) co-requisite. The following course(s) completed as part of the Major requirements may fulfill this requirement: **MUS200***
- K. **Foreign Language proficiency** - Proficiency at the FL_102 level is required for graduation.

CURRICULUM REQUIREMENTS**Format B**

<u>Degree/Plan Title:</u> Bachelor of Science in Music Technology <u>Plan SIS Code:</u> 24MUTBS		
Concentration/Subplan Title: Software & Digital Hardware		Subplan SIS Code: 24MUTSDH
<u>Indicate requirements status:</u> Current:	Proposed: X	<u>Proposed</u> Effective Semester: Fall 2020
<u>New Degree Audit required?</u> (Y or N) Yes		
<u>Critical Path Courses</u> - Identify using the code (CP) which courses are considered critical path courses which represent specific major requirements that are predictive of student success in a given program/plan. Place the (CP) next to the credit hours for the course.		

MAJOR FIELD OF STUDY REQUIREMENTS:		
<i>Required Courses/Groups/ Electives:</i>	<i>Credit Hours</i>	<i>GEP category, if applicable</i>
Indicate if course or course groupings have a C-wall or MGPA requirement and which are considered Critical Path courses – indicate with (CP) next to applic. course.		List GEP category and hours satisfied by a Major requirement
<u>Musicianship Core</u> MUS 103 Theory and Musicianship I MUS 104 Theory and Musicianship Lab I MUS 107 Class Piano I MUS 153 Theory and Musicianship II MUS 154 Theory and Musicianship Lab II MUS 200 Understanding Music: Global Perspectives MUS 203 Theory and Musicianship III MUS 204 Theory and Musicianship Lab III MUS 207 Class Piano II MUS 253 Theory and Musicianship IV MUS 254 Theory and Musicianship Lab IV	3 1 1 3 1 3 3 1 1 3 1	VPA IP,GK, VPA
<u>Applied Study</u> MUS 193 (two semesters) MUS 293 (two semesters)	1,1 1,1	
<u>Ensemble Study</u> Four semesters of approved ensemble from: MUS 112 Men's Choir MUS 113 Women's Choir MUS 115 State Chorale MUS 121 Raleigh Civic Symphony MUS 122 Raleigh Civic Chamber Orchestra MUS 134 Wind Ensemble MUS 135 Symphonic Band MUS 142 Jazz Ensemble II MUS 144 Jazz Ensemble I	1,1,1,1	
<u>Additional Study</u> MUS 240 Introduction to Music Industry EMA 110 Introduction to Arts Entrepreneurship D 100 Design Thinking I: Methods and Processes	3 3 3	VPA IP IP
<u>Math and Science</u> MA 141 Calculus I MA 241 Calculus II PY 205 Physics for Engineers & Scientists I	4 4 3	MA MA NS

PY 206 Physics for Engineers & Scientists I LAB	1	NS
PY 208 Physics for Engineers & Scientists II	3	NS
PY 209 Physics for Engineers & Scientists II LAB	1	NS
<u>Electrical & Computer Engineering Core</u>		
ECE 109 Introduction to Computer Systems	3	
ECE 200 Introduction to Signals, Circuits, & Systems	4	
ECE 209 Computer Systems Programming	3	
<u>Music Technology Core</u>		
MUT 303 Introduction to Audio Technology I	3	
MUT 304 Introduction to Audio Technology II	3	
MUT 315 Music Perception & Cognition	3	
MUT 403 Music Recording & Mixing	3	
MUT 431 Music Technology I	3	
MUT 432 Music Technology II	3	
<u>Capstone</u>		
MUT 461 Music Technology Senior Project I	3	
MUT 462 Music Technology Senior Project II	3	
<u>Concentration Courses/Groups/Electives:</u>		
<u>Software & Digital Hardware Concentration</u>		
ECE 212 Fundamentals of Logic Design	3	
<i>Choose two of the following:</i>		
ECE 306 Introduction to Embedded Systems	3	
ECE 309 Data Structures and Object-Oriented Programming for Electrical and Computer Engineers	3	
Or	3	
ECE 310 Design of Complex Digital Systems		
<u>Free Electives:</u>	2	
Total credit hours under Major Field of Study: <i>Minimum 27 hours required in program area.</i>	98 hours	
COLLEGE REQUIREMENTS:		
<u>Orientation Course(s):</u>	0	
<u>Other:</u>	0	
Total credit hours under College Requirements:	0 Hours	

NCSU GENERAL EDUCATION PROGRAM REQUIREMENTS <i>Courses in the Major and/or Minor may also fulfill a General Education requirement; however, a GEP category <u>may not be subset</u> to require a specific course from the category list. Required courses must be listed in the Major/College requirements.</i> Specific courses should not be listed in any of the fields below other than ENG 101.		At least one of the following must be listed: 1 Choose course(s) from the University Approved GEP course list for this category. 2 Minimum requirements are satisfied by Major/College course requirements. 3 Major/College course requirement satisfies <u>X</u> credit hrs of this requirement. Remaining hours required must be chosen from the University Approved GEP course list for the category. 4 Co-requisite is satisfied by a Major/College course requirement. 5 Choose course(s) from the University Approved GEP course lists for the Humanities/ Social Sciences/ Visual & Performing Arts. 6 Choose course(s) from the University Approved GEP course lists for Natural Sciences/Mathematical Sciences.
General Education Program Requirements: <i>Minimum 39-40 hrs</i>	Credit hours	How will the GEP requirement be met? (Choose applicable statement from 1-6 listed above)
Mathematical Sciences (6 credits) (At least 1 course with MA or ST prefix) <i>Course(s) in the Major may double-count to satisfy this requirement and also satisfy either the Global Knowledge or U.S. Diversity co-requisites.</i>	0	(Choose statement 1, 2 or 3) 2
Natural Sciences (7 credits) (At least 1 <i>lab</i> course or course with a <i>lab</i>) <i>Course(s) in the Major may double-count to satisfy this requirement and also satisfy either the Global Knowledge or U.S. Diversity co-requisites.</i>	0	(Choose statement 1, 2 or 3) 2
English 101 (C- or better required) (4 credits)	4	ENG 101
Humanities (6 credits) (Courses from two different disciplines) <i>Course(s) in the Major may double-count to satisfy this requirement and also satisfy either the Global Knowledge or U.S. Diversity co-requisites.</i>	6	(Choose statement 1, 2 or 3) 1
Social Sciences (6 credits) (Courses from two different disciplines) <i>Course(s) in the Major may double-count to satisfy this requirement and also satisfy either the Global Knowledge or U.S. Diversity co-requisites.</i>	6	(Choose statement 1, 2 or 3) 1
Additional Breadth (3 credits) (Choose approach that is <i>different</i> from the approach of the Major) <i>Major/College requirements cannot satisfy this requirement and an AB course cannot be double-counted except in satisfying the Global Knowledge or U.S. Diversity co-requisites.</i>	3	(Choose statement 5 or 6) 1
Interdisciplinary Perspectives (5 credits) <i>Course(s) in the Major may double-count to satisfy this requirement and also satisfy either the Global Knowledge or U.S. Diversity co-requisites.</i>	0	(Choose statement 1, 2 or 3) 2
Health and Exercise Studies (2 credits) (Including one <i>Fitness and Wellness</i> course)	2	Choose course(s) from the University Approved GEP course list for this category.
Total credit hours needed to complete GEP that are <u>not</u> satisfied as part of the Major/College requirements.	21 hours	
GEP Co-Requisites:		Courses taken in the Major, GEP, or Minor may double-count to fulfill the co-requisites. Courses that satisfy the U.S. Diversity or Global Knowledge co-requisite are marked on course lists with a "USD" or "GK" indicator.
U.S. Diversity co-requisite (USD)	n/a	(Choose statement 1 or 4) 1
Global Knowledge co-requisite (GK)	n/a	(Choose statement 1 or 4) 4
Foreign Language Proficiency	n/a	Proficiency at the FL_102 level required.
The following requirements must be satisfied within the College/Program:		Place an X in the credit hour box to indicate below that the requirement is "Satisfied by College/Program Requirements"
Communication in the Major (Advanced Communication)	X	Satisfied by College/Program Requirements
Technology Fluency	X	Satisfied by College/Program Requirements
Total credit hours required to complete Degree: Total must be within 120-128 credit hours.	120 Total hours	As applicable, indicate here the overall GPA requirement for degree completion including course completion. 2.0 GPA

Routing for On-Campus Approval of the Letter of Intent for a New Degree Program

Proposed Program Title: Music Technology

Degree Type (circle one): Bachelor's / Master's / Doctoral

Proposed Effective Date: Fall 2020 Program Contact: Dr. Daniel Monek

Proposed CIP Code (see <https://nces.ed.gov/ipeds/cipcode/default.aspx?y=55>): 50.0913

Routing Action: Indicate date when the following occurs

Completed Letter of Intent and 1-page Concept Paper

Completed Letter of Intent

6/10/2019 Department Head endorses*

3/18/2019 College Curriculum Committee (undergraduate or graduate) recommends* (See original

3/19/2019 College Dean endorses* signature sheet)

Letter of Intent moves to Undergraduate or Graduate office for routing

N/A Recommended by Vice Provost, DELTA, if applicable* (See original

4/18/2019 Associate Deans Council **or** Graduate Operations Council informed signature sheet)

4/10/2019 Dean (Graduate School or DASA) approves*

Letter of Intent moves to the Executive Vice Chancellor Provost's office for routing

4/25/2019 Substantive Change Review Team (SCRT) makes initial determination of likelihood of (See original
SACSCOC notification signature sheet)

7/25/19 Council of Deans recommends*

8/19/19 Vice Provosts informed

TBD 10/24/19 University Council informed

7/25/19 Executive Vice Chancellor and Provost approves*

8/28/19 Submitted to UNC System Office by Provost's Office

approved 9/10/19

* Signature is required on the signature page for the action

NC STATE

LaTissa Davis <lcdavis@ncsu.edu>

Request to Plan has been approved

uncprep@northcarolina.edu <uncprep@northcarolina.edu>

Tue, Sep 10, 2019 at 8:22 AM

To: lcdavis@ncsu.edu, bbschamb@ncsu.edu, mnanima@ncsu.edu, flcrawfo@ncsu.edu, pjharrie@ncsu.edu, dklarick@ncsu.edu, lamarcus@ncsu.edu

Request to Plan has been approved for the following degree program from NC State University:

Bachelor's in Music Technology

Request to Establish should be submitted within four months.

<https://prep.northcarolina.edu/arp/dashboard/dashboard.php>



THE
UNIVERSITY OF
NORTH CAROLINA
SYSTEM

Letter of Intent to Develop New Academic Degree Program

The following approvals must be obtained prior to sending the Letter of Intent to Develop a New Academic Degree Program to the UNC System Office.

Institution North Carolina State University

Degree Program Title (e.g. M.A. in Biology) B.S. in Music Technology

Reviewed and Approved By (Title)

Provost:

Faculty Senate Chair (if applicable):

Undergraduate or Graduate Dean (if applicable):

Academic College Dean:

Department Chair:

Program Director/Coordinator:

New Academic Proposal Process

New academic programs are initiated and developed by the faculty members. Approval of the Letter of Intent to Develop a New Academic Degree Program must be obtained from department chairs and college deans or equivalent administrators before submission to the UNC System Office review.

Directions: Please provide a succinct, yet thorough response to each section. Obtain the Provost's signature and submit the proposal via the PREP system to the UNC System Vice President for Academic Programs, Faculty, and Research, for review and approval by the UNC System Office. Once the Letter of Intent to Develop is approved, the institution can begin work on the formal Request to Establish a New Degree Program.

Letter of Intent to Develop a New Academic Degree Program

Institution	North Carolina State University
Joint Degree Program (Yes or No)? If so, list partner campus.	No
Degree Program Title (e.g. M.A. in Biology)	Bachelor of Science in Music Technology
CIP Code and CIP Title (May be found at National Center for Education Statistics)	50.0913- Music Technology
Require UNC Teacher Licensure Specialty Area Code (Yes or No). If yes, list suggested UNC Specialty Area Code(s).	NO
Proposed Delivery Mode (campus, online, or site-based distance education). Add maximum % online, if applicable.	Campus
Proposed Term to Enroll First Students (e.g. Spring 2019)	Fall 2020
List other programs in the UNC System (may be found at UNC System website)	UNC-Asheville: Bachelor of Science in Music Technology

SACSCOC Liaison Statement: *(Provide a brief statement from the University SACSCOC liaison regarding whether the new program is or is not a substantive change.)*

Program Summary: *(Briefly describe the proposed program and summarize the overall rationale.)*

Include the following in your narrative:

- Ways in which the proposed program is distinct from others already offered in the UNC System (use the 4-digit CIP as a guide). Information on other programs may be found on the UNC System [website](#).
- How this program supports specific university and UNC System [missions](#).
- Collaborative opportunities with other UNC institutions as appropriate. (maximum length 500 words)

The North Carolina State University Department of Music proposes planning a new Bachelor of Science

in Music Technology that will foster and support music-based entrepreneurial initiatives at the intersection of technological innovation and creative expression. It is evident that careers combining music and technology will continue to grow in number and variety as technology continues to revolutionize the multi-faceted music industry. In order to strategically address this growing employment area and the needs of those currently working in the music industry, the Music Technology program will have several practical outcomes:

- 1) Contributing to the economic development of North Carolina and the region
- 2) Providing meaningful and gainful employment for graduates
- 3) Meeting the needs of employers and industry
- 4) Developing services and/or intellectual property that will benefit our institution, state, and society as a whole.

This distinctive and interdisciplinary program, which embraces and bolsters a quickly-emerging discipline, will engage students through a pairing of rigorous professional training in music with intensive interdisciplinary study of topics in electrical engineering, computer engineering, design, and arts entrepreneurship. Drawing on a variety of existing strengths at NC State, students will build a foundation of theoretical and practical skills in music, build practical skills with current music technologies, gain practical skills within the related fields of electrical engineering or computer engineering, and develop supporting skills and knowledge in industrial design and entrepreneurship. The program will integrate a broad range of musical styles, performance practices, and creative projects with the design, development, and implementation of advanced music technologies. This structure will provide a degree of flexibility through tracks of study that could result in students gaining substantive theoretical and practical skills in performance, computer music, sound synthesis, music production, software development, digital signal processing, music information retrieval, human-computer interaction, interactivity, robotic musicianship, multimedia, audio systems, or sound design.

Leveraging many of NC State's strengths through its interdisciplinary nature, the program design will be unique within the UNC system and among the small number of premiere music technology programs in existence across the nation (for example University of Miami and Georgia Tech). Currently, only one institution in the UNC system, UNC-Asheville, offers a major in the most relevant CIP code (50.0913-Music Technology) and two other institutions, Appalachian State University and Elizabeth City State University, offer music technology related majors through the CIP code for Music Industry (50.1003). The proposed degree does not duplicate or compete with any of these programs. The major at UNC-Asheville, a Bachelor of Science in Music Technology, is limited to audio mixing and recording and requires only limited interdisciplinary study, predominantly in physics, with the intent of producing students who "learn how to professionally mix and record music." The program at Elizabeth City State University is offered as a music business or sound recording technology concentration within a Bachelor of Arts degree with the intent of providing "a broad liberal arts education for students interested in diverse fields within the music industry." It does not require interdisciplinary training or the extensive mathematics or science components anticipated in our intended curriculum. Similarly, Appalachian State University offers a Bachelor of Science in Music Industry Studies with a concentration in "recording and production" designed to help students "develop expertise in the fields of studio recording and live sound" or "manufacturing and merchandising." Both concentrations include substantial studies in business, but do not have the extensive engineering, mathematics, or science components of our

intended curriculum.

The establishment of a Bachelor of Science in Music Technology would directly contribute to the strategic goals of both the UNC system and NC State while also filling a vital gap in North Carolina's growing technology industry and strong arts economy. The development of this program supports both the first and the third goal of NC State's strategic plan as articulated in the initiative to "explore new undergraduate degree programs to encourage multi/interdisciplinary focus." The addition of this curriculum will build on NC State's culture of collaboration and interdisciplinarity and its strategic strengths to serve a growing industry that has both a strong regional and national need for support and development. In so doing it supports UNC system goals for economic impact and opens the door for North Carolina to become a leader in the quickly growing music technology industry.

Student Demand: *(Provide evidence of student demand. Discuss the extent to which students will be drawn from a pool of students not previously served by the institution. Maximum length 1,000 words.)*

As an emerging discipline, prospective enrollment is best identified through a review of both current student interest in music and engineering, generalized growth in music technology study, and the enrollment trends of other institutions that have developed similar programs.

Among our own student body there are significant ties between student interest in music study and engineering, science, and math. This is not unexpected as the interrelationships between music, math, and science have long been established and recognized. Of the 5,381 incoming students surveyed in the university's Student Involvement Survey in the fall of 2018, 8.1% indicated an interest in music technology related opportunities. Among currently-declared music minors, 64.8% are pursuing major studies in a science or engineering field related to the degree proposal.

The Higher Education Arts Data Summary in Music compiled each year from the annual reports of the more than 500 member institutions of the National Association of Schools of Music (NASM), the accrediting body for post-secondary education in music in the United States, shows significant growth in the number of students enrolling in programs in the broadly-defined area of music technology/engineering. From the 2011-12 academic year to the 2016-17 academic year NASM member institutions reported a combined 213% increase in enrolled music technology/engineering majors. More specific to the department's proposed curriculum are enrollment numbers at institutions that house the nation's leading music technology programs. The Bachelor of Music (BM) in Music Technology in the Department of Music and Performing Arts Professions, Steinhardt School, at New York University has approximately 100 music technology majors and entering classes average 32 students. The Bachelor of Science in Music Engineering Technology at the Frost School of Music, University of Miami (FL), and the Bachelor of Science in Music Technology program in the Department of Music and Arts Technology at Indiana University-Purdue University Indianapolis both have an average of 70-80 total undergraduate music technology majors. The new Bachelor of Science of Music Technology begun in the spring semester of 2016 at Georgia Tech exceeded all of its enrollment projections and already has more than 75 majors.¹

According to data compiled from the University of Michigan's "Monitoring the Future" study nearly 40%

¹ Enrollment data for these institutions was self-reported by music administration colleagues from each institution.

of high school students participate in music programs.² In North Carolina, the Arts Education Data Project³ provides more specific detail that more than 66,000 (approximately 15%) of North Carolina high school students are enrolled in a music class. While the majority of these students will not pursue a traditional path of formal music study, a growing number are seeking ways to combine their music interests with other fields of study. The unique nature of the proposed degree both nationally and in North Carolina means it will become a strong draw for students who seek to formally combine their music and engineering interests. With no similar curricula within the UNC system, the state of North Carolina, or even the mid-Atlantic region, this program will fill a gap in current availability that will draw these students.

Societal Demand: *(Provide evidence of societal demand and employability of graduates from each of the following source types. Maximum length 1,000 words)*

- Labor market information (projections, job posting analyses, and wages)
 - Specific to North Carolina (such as ncworks.gov, nctower.com, or outside vendors such as [Burning Glass](http://burningglass.com))
 - Available from national occupational and industry projections (such as the [U.S. Bureau of Labor Statistics](http://www.bls.gov))
- Projections from professional associations or industry reports
- Other (alumni surveys, insights from existing programs, etc.)

North Carolina has long been an innovator in music institutions and industry. It is home to the first state-funded symphony orchestra in the nation, the NC Symphony, and has developed some of the first cultural tourism projects that focus on music in the country. Its creative arts industry through both direct and indirect jobs accounts for more than 7% of the state's work force and the non-profit arts and culture industry alone accounts for more than \$2.12 billion in the state's economy generating approximately \$201.5 million in state and local tax revenues.⁴ According to the North Carolina Arts Council, jobs in North Carolina's creative sector have increased 27% from 2006 to 2016. Today the conclusion reached by Mike Masnick, the author of "The Music Industry Is Desperate For A Few Good Technologists," in 2011 remains true – "It seems clear that music startups are all desperate for tech help."⁵

While labor statistics specific to jobs in music technology are not yet available, perspective can be gained by looking at data from Burning Glass Technologies, a labor analytics company that pulls from thousands of sources of job postings online and provides additional perspective on trends in emerging

² Drawn from an analysis by Child Trends of data from Monitoring the Future: A Continuing Study of American Youth, 1991-2016

³ <https://www.artseddata.org>

⁴ North Carolina Arts Council, Creative Economy Measures 2016 Data Summary, ncarts.org

⁵ techdirt.com, 5/10/2011

fields. Their projections indicate that jobs with skill sets similar to those in the proposed major will see “explosive growth” (102.31%) within the next five years. A report from Georgia Tech’s School of Music, which relied on data from Burning Glass, also noted that job postings requiring a bachelor degree with core skills tied closely to music technology showed growth nationally of 225%.

The North Carolina State of Technology 2018 Industry Report released by the North Carolina Technology Association notes that North Carolina is ranked third in total tech employment growth from 2011-2016. The report analyzes 87 separate North American Industry Classification System (NAICS) codes categorized into four major sub-categories. Music Technology is directly linked to fifteen NAICS categories that are included within the reports “Tech Core (IT)” subcategory. In this area the report notes the largest growth rate of all technology areas in the study with a job growth rate of about 22% in the last five years. Employment in the software subsector alone has grown by 53% from 2011-2016.

There is a significant need for educated professionals with sophisticated music technology skills in the arts and entertainment industries, software and professional audio corporations, education, music hardware manufacturers, and from manufacturers seeking to integrate music into their product including automobile, computer manufacturers, and media companies. Recent technological innovations, such as new electronic music instruments, commercial online distribution of music, and mobile music applications have fundamentally changed the business of creating, performing, and consuming music. This in turn has created a need for technologically literate musicians and artistically creative engineers to develop and operate the enabling technologies at the core of such systems and services. As a growing number of start-ups and large corporations have focused on music, new markets have emerged in music technologies for the general public, novices, multimedia, and educational applications. These areas do not receive enough attention in academia, which has resulted in a growing need for qualified music technologists.

This challenge is highlighted by several industry leaders and companies:

Marcus Cremer, Vice President of Applied Research at Gracenote:

Our company is leading industrial research and development of media-centric systems and algorithms, specifically around recognition, personalization, and recommendation of music and video content. As such, we are continually seeking full-time employees and part-time interns who possess strong technical backgrounds coupled with a deep understanding of music. Identifying, hiring, and retaining genuinely multi-talented individuals with this unique skill set has been both difficult and time-consuming for us.

Tristan Jehan, Director of Research at Spotify and Co-founder of The Echo Nest:

Spotify’s culture is built around fast innovation. It is terribly important to the future of Spotify...that we keep hiring and hosting the finest and brightest students in the field of music

and technology. The growing and shifting music tech industry needs new talented developers that are well versed both in music and technology.

Ableton, a company founded to develop unique software and hardware for music creation and performance, notes that positions requiring the skills of a music technologist “often go unfilled for long periods of time” and qualified applicants are “very challenging to find.” Executives at Pandora, one of the most internationally recognized music streaming and automated music recommendation service companies in the world, noted that “such a unique combination of musical and technical skills is incredibly difficult to find.”

These comments are supported by the results of programs at other academic institutions. The program most closely related to our proposed curriculum and a leader in this emerging discipline is the Bachelor of Science in Music Technology at Georgia Tech. It currently reports a 94% employment rate for its graduates within four months of graduation.⁶ The University of Miami’s program reports that 90% of its graduates have secured their postgrad plans (employment or graduate school) within six months of degree completion⁷.

For Doctoral Programs Only:

Describe the following (maximum length 2,000 words):

- The research and scholarly infrastructure in place (including faculty) to support the proposed program.
- Method of financing the proposed new program (including extramural research funding and other sources) and indicate the extent to which additional state funding may be required.
- State the number, amount, and source of proposed graduate student stipends and related tuition benefits that will be required to initiate the program.

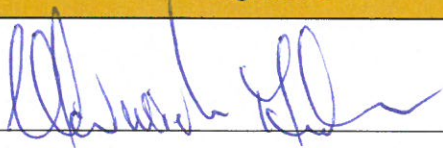
⁶ Self reported by Frank Clark, Chair of the School of Music, Georgia Institute of Technology

⁷ As reported on their program website.

Contact: (List the names, titles, e-mail addresses and telephone numbers of the person(s) responsible for planning the proposed program.)

Position Title	Name	E-mail Address	Telephone
Department Head, Music	Daniel G Monek, Ph.D.	dgmonek@ncsu.edu	(919) 515-1692
Associate Department Head, Music	Tom Koch, Ph.D.	tdkoch@ncsu.edu	(919) 515-0149

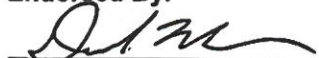
This Letter of Intent to Plan a New Program has been reviewed and approved by the appropriate campus authorities.

Position Title	Signature	Date
Provost		7/25/12
Provost (Joint Partner Campus)		

North Carolina State University Original Signature Sheet

This request has been reviewed and approved by the appropriate campus committees and authorities.

Endorsed By:



3-08-2019

Head, Department/Program

Date

Recommended By:

Jennifer Capps 
Chair, College Curriculum Committee

March 18, 2019

Date

Endorsed By:



MARCH 19, 2019

College Dean

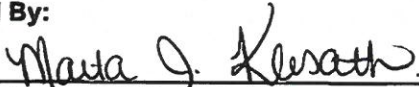
Date

Recommended By:

Vice Provost, DELTA (if DE degree/certificate)

Date

Recommended By:

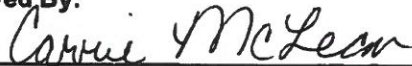
Marta J. Kersath 

4/10/19

Chair, University Courses & Curricula Committee

Date

Approved By:

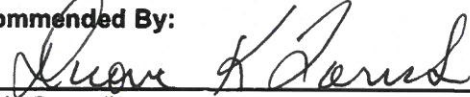
Carrie McLean 

4/10/19

Dean, (DASA or the Graduate School)

Date

Recommended By:

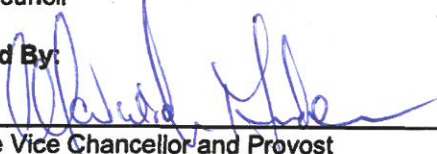


7/25/19

Dean's Council

Date

Approved By:



7/25/19

Executive Vice Chancellor and Provost

Date

Approved By:

N/A

Chancellor

Date

MEMO

To: Dr. Lisa Zapata
Interim Vice-Chancellor
Division of Academic and Student Affairs

From: Dr. Sarah Heckman (sarah_heckman@ncsu.edu)
Director of Undergraduate Programs, Department of Computer Science
Phone: +1.919.515.2042

Date: October 22, 2019


Subject: Undergraduate Certificate in Computer Programming (14CPCTU)

We are splitting a lecture-lab course with 4-credit hours (CSC 216) to a separate 3-credit hour lecture (CSC 216) and a 1-credit hour open lab section (CSC 217). We seek to solve two challenges: 1) students interested in transferring CSC 216-equivalent course work from other institutions could not do so if the other course was under 4-credit hours and 2) students who fail CSC 216, while doing well on the labs, have to repeat the lab. By separating the lecture and lab, we provide a transfer pathway for students and can utilize CSC 217 as a transfer course to ensure students are prepared for future major or minor coursework. Additionally, we reduce the need for extra seats in the lecture or lab if students only need to repeat either the lecture or the lab. We are renaming CSC 216 and CSC 217 to reflect the emphasis on software development process. Finally, we are adding the statement that CSC 116, CSC 216, and CSC 217 must be completed with a C or better.

Proposed effective date: 7/2020



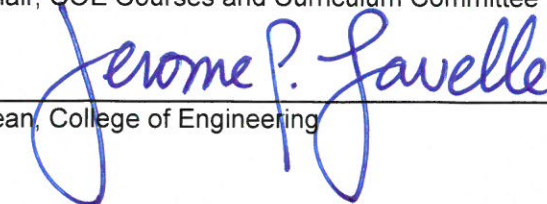
Director of Undergraduate Programs, Computer Science
Date 10/22/2019



Head, Department of Computer Science
Date 10/22/2019



Chair, COE Courses and Curriculum Committee
Date 30 Oct 19



Dean, College of Engineering
Date 10/31/19

Chair, University Courses and Curricula Committee
Date

Office of the Provost
Date

Computer Programming (PBS) (DE only)

Proposed Effective Date: 7/2020

Description

The Computer Science Department offers the Computer Programming Certificate (CPC) to post-baccalaureate students (PBS) to enable them to change careers, enhance their professional credentials, or simply learn more about computer programming. The focus of the required courses is the theory and practice of the basics of Computer Science and computer programming. Rather than teach applications and a single skill set, the program focuses on higher order analytical skills that are crucial to mastery of an ever-changing field. This certificate is offered via Distance Education.

Program Coordinators

Certificate Director

Dr. Sarah Heckman

North Carolina State University

Department of Computer Science-Engineering

Campus Box 8206

Raleigh, NC 27695

919-515-2042

sarah_heckman@ncsu.edu

Director of Engineering Online

Dr. Linda Krute

North Carolina State University

College of Engineering – Dean's Office

Campus Box 7547

Raleigh, NC 27695

919-515-5440

linda_krute@ncsu.edu

Curriculum

Required Courses:

- MA 121 Introduction to Calculus (or any college calculus course)
*Please note that students who intend to pursue graduate study after completion of the CPC need MA 141, not MA 121.
- CSC 116 Introduction to Computing – Java (3 cr with a grade of C or better)
- CSC 216 Software Development Fundamentals (3 cr with a grade of C or better)
- CSC 217 Software Development Fundamentals Lab (1 cr with a grade of C or better)
- CSC 226 Discrete Mathematics (3 cr)
- CSC 230 C and Software Tools (3 cr)
- CSC 236 Computer Organization and Assembly Language (3 cr)
- CSC 246 Concepts and Facilities of Operating Systems (3 cr)
- CSC 316 Data Structures (3 cr)

** The Department of Computer Science waives the pre/co-requisite of MA 121 or 131 or 141 so students interested in the CPC may begin by taking CSC 116. However, a Calculus I class remains a requirement for the CPC program. E 115 is waived as a prerequisite for CSC 116 since this is a DE program and E 115 material is not needed for student success.

Total Hours Required: 24

Admissions Requirements

Although anyone with the prerequisites can take CSC classes offered through the CPC Program, the CPC is a distance-only program for PBS students. After students have been accepted as an NDS student at NC State, they may apply for the CPC program. Students must submit a BS/BA transcript from a degree other than computer science or computer engineering. The certificate is awarded to students completing the required courses with a grade point average of 2.0 or above.

Engineering Online and the Department of Computer Science jointly maintain and distribute a written description for interested prospective students. The Director of Advising for the Department of Computer Science coordinates with Registration & Records in issuing of certificates.

All course descriptions are identical to regular courses.

Students may enroll for classes through Engineering Online.

Plan of Study

Contact the Program Coordinators.

Registration Information

Contact the Program Coordinators.

Academic Structure

Term Effective: 1/1979; 8/2011, 1/2019, 7/2020

Plan Code: 14CPCTU, 32CPCTU

CIP Code: 14.0901

Description: Undergraduate Certificate in Computer Programming

Offered: Distance Education format only

Computer Programming (PBS) (DE only)

Effective Date: Spring 2019

Description

The Computer Science Department offers the Computer Programming Certificate (CPC) to post-baccalaureate students (PBS) to enable them to change careers, enhance their professional credentials, or simply learn more about computer programming. The focus of the required courses is the theory and practice of the basics of Computer Science and computer programming. Rather than teach applications and a single skill set, the program focuses on higher order analytical skills that are crucial to mastery of an ever-changing field. This certificate is offered via Distance Education.

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Curriculum

Required Courses:

- MA 121 Introduction to Calculus (or any college calculus course)

*Please note that students who intend to pursue graduate study after completion of the CPC need MA 141, not MA 121.

- CSC 116 Introduction to Computing – Java (3 cr)
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Total Hours Required: 24

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Plan of Study

Contact the Program Coordinators.

Registration Information

Contact the Program Coordinators.

Academic Structure

Term Effective: 1/1979; 8/2011, 1/2019

Plan Code: 14CPCTU, 32CPCTU

CIP Code: 14.0901

Description: Undergraduate Certificate in Computer Programming

Offered: Distance Education format only

MEMO

To: Dr. Lisa Zapata
Interim Vice-Chancellor
Division of Academic and Student Affairs

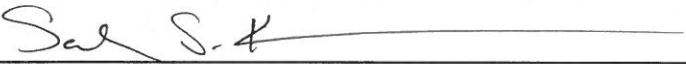
From: Dr. Sarah Heckman (sarah_heckman@ncsu.edu)
Director of Undergraduate Programs, Department of Computer Science
Phone: +1.919.515.2042

Date: October 22, 2019


Subject: Minor in Computer Programming (14CPM)

We are splitting a lecture-lab course with 4-credit hours (CSC 216) to a separate 3-credit hour lecture (CSC 216) and a 1-credit hour open lab section (CSC 217). We seek to solve two challenges: 1) students interested in transferring CSC 216-equivalent course work from other institutions could not do so if the other course was under 4-credit hours and 2) students who fail CSC 216, while doing well on the labs, have to repeat the lab. By separating the lecture and lab, we provide a transfer pathway for students and can utilize CSC 217 as a transfer course to ensure students are prepared for future major or minor coursework. Additionally, we reduce the need for extra seats in the lecture or lab if students only need to repeat either the lecture or the lab. We are renaming CSC 216 and CSC 217 to reflect the emphasis on software development process. Finally, we are adding the statement that CSC 116, CSC 216, and CSC 217 must be completed with a C or better.

Proposed effective date: 07/2020



Director of Undergraduate Programs, Computer Science
10/22/2019
Date



Head, Department of Computer Science
10/22/2019
Date



Chair, COE Courses and Curriculum Committee
30 Oct 19
Date

Dean, College of Engineering
Date

Chair, University Courses and Curricula Committee
Date

Office of the Provost
Date

Computer Programming (14CPM)

Proposed Effective Date: 7/2020

Description

The Department of Computer Science offers a Minor in Computer Programming to undergraduate majors in any field except Computer Science, Electrical Engineering, and Computer Engineering. The objectives of this minor are to: 1) encourage students to combine computing with their own disciplines, 2) promote quality in programming techniques, and 3) give graduating seniors with a minor in computer programming an added advantage in the job market.

Requirements

Completion of 22 credit hours.

All courses in the minor must be completed with a grade point average of 2.0 or higher.

Required Courses

Corequisites for CSC 116 (may be taken prior to or in the same semester as CSC 116):

- E 115 (Intro. to Computing Environments) or COS 100 (Science of Change) (1 cr)
- MA 121 Intro. to Calculus (or any college calculus course) (3-4 cr)

CSC Courses:

- CSC 116 Introduction to Computing – Java (3 cr **with a grade of C or better**)
- **CSC 216 Software Development Fundamentals (3 cr with a grade of C or better)**
- **CSC 217 Software Development Fundamentals Lab (1cr with a grade of C or better)**
- CSC 226 Discrete Mathematics for Computer Scientists (3 cr)
- CSC 230 C and Software Tools (3 cr)

- CSC 236 Computer Organization and Assembly Language for Computer Scientists (3 cr)
- CSC 246 Concepts and Facilities of Operating Systems for Computer Scientists (3 cr)
- CSC 316 Data Structures for Computer Scientists (3 cr)

Elective Courses

None

Admissions

Undergraduates will be admitted to the Minor in Computer Programming only after they have completed CSC 116 with a grade of C or higher, and have an overall GPA of at least 2.25. Students should submit the application for the Minor in Computer Programming to the CSC Coordinator for Academic Minor, as listed below, who will be the minor advisor. This can be done via e-mail or in person. Students must have a posted grade in order to submit an application.

Certification

The contact person listed below will certify the minor prior to graduation. The minor must be completed no later than the semester in which the student expects to graduate from his or her degree program. Paperwork for certification should be completed no later than during the registration period for the student's final semester at NC State.

Contact Person

Dr. Barbara Jasmine Adams
1204 Engineering Bldg II (EB II)
919.513.7888
barbara_adams@ncsu.edu

SIS Code: 14CPM

Computer Programming (14CPM)

Effective Date: Spring 2019

Description

The Department of Computer Science offers a Minor in Computer Programming to undergraduate majors in any field except Computer Science, Electrical Engineering, and Computer Engineering. The objectives of this minor are to: 1) encourage students to combine computing with their own disciplines, 2) promote quality in programming techniques, and 3) give graduating seniors with a minor in computer programming an added advantage in the job market.

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Elective Courses

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Admissions

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Contact Person

Dr. Barbara Jasmine Adams
1204 Engineering Bldg II (EB II)
919.513.7888
barbara_adams@ncsu.edu

SIS Code: 14CPM

MEMO

To: Dr. Lisa Zapata
Interim Vice-Chancellor
Division of Academic and Student Affairs


From: Dr. Sarah Heckman (sarah_heckman@ncsu.edu)
Director of Undergraduate Programs, Department of Computer Science
Phone: +1.919.515.2042

Date: October 22, 2019

Subject: 14CSC BS

We are splitting a lecture-lab course with 4-credit hours (CSC 216) to a separate 3-credit hour lecture (CSC 216) and a 1-credit hour open lab section (CSC 217). We seek to solve two challenges: 1) students interested in transferring CSC 216-equivalent course work from other institutions could not do so if the other course was under 4-credit hours and 2) students who fail CSC 216, while doing well on the labs, have to repeat the lab. By separating the lecture and lab, we provide a transfer pathway for students and can utilize CSC 217 as a transfer course to ensure students are prepared for future major or minor coursework. Additionally, we reduce the need for extra seats in the lecture or lab if students only need to repeat either the lecture or the lab. We are renaming CSC 216 and CSC 217 to reflect the emphasis on software development process.

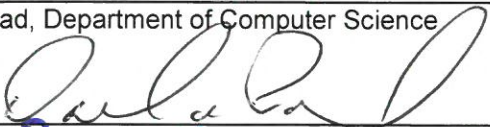
Proposed effective date: 07/2020



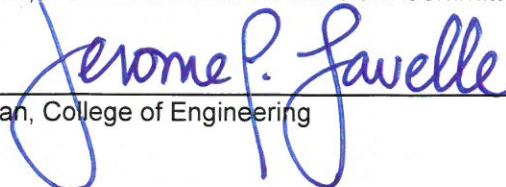
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Chair, COE Courses and Curriculum Committee
30 Oct 19
Date



Dean, College of Engineering
10/31/19
Date

Chair, University Courses and Curricula Committee
Date

Office of the Provost
Date

GEP FORMAT A
(SEMESTER-BY-SEMESTER CURRICULUM DISPLAY)

Current: Proposed: X Proposed Effective Semester: **7/2020**

DEGREE TITLE: **B.S. in Computer Science**

CONCENTRATION TITLE: n/a

CURRENT DEGREE KEY: **14CSC BS**

FRESHMAN YEAR

<u>Fall Semester</u>		<u>Credits</u>	<u>Spring Semester</u>		<u>Credits</u>
CH 101	Chemistry – A Molecular Science ^{1,2,B}	3	CSC 116	Intro. to Computing - Java ²	3
CH 102	General Chemistry Laboratory ^{1,2,B}	1	MA 241	Calculus II ^{1,2,A}	4
E 101	Intro to Engineering & Prob Solving ^{1,7}	1	PY 205	Physics for Engrs & Sci I ^{1,2,B}	3
E 115	Intro to Computing Environments ¹	1	PY 206	Physics for Engrs & Sci I Lab ^{1,2,B}	1
ENG 101	Academic Writing and Research ^{1,7,H}	4	EC 205	Fund of Econ ^D (<i>or</i> EC 201 <i>or</i> ARE 201)	3
MA 141	Calculus I ^{1,2,A}	<u>4</u>	E 102	Engineering in the 21 st Century ^{1,2,G}	<u>2</u>
		14			16

SOPHOMORE YEAR

<u>Fall Semester</u>		<u>Credits</u>	<u>Spring Semester</u>		<u>Credits</u>
CSC 216	Software Development Fundamentals²	3	CSC 230	C and Software Tools	3
CSC 217	Software Development Fundamentals Lab²	1	CSC 316	Data Structures for CSC	3
CSC 226	Discrete Mathematics for CSC ²	3	MA 305	Elementary Linear Algebra	3
MA 242	Calculus III	4	GEP Requirement*		3
PY 208	Physics for Engrs & Sci II ^B	3	Basic Science Elective ^{3,B}		<u>3</u>
PY 209	Physics for Engrs & Sci II Lab ^B	1			15
Physical Education/Healthy Living Elective ^E		<u>1</u>			
		16			

JUNIOR YEAR

<u>Fall Semester</u>		<u>Credits</u>	<u>Spring Semester</u>		<u>Credits</u>
CSC 236	Comp Org & Assem Lang for CSC	3	CSC 326	Software Engineering	4
CSC 246	Operating Systems for CSC	3	CSC 379	Ethics in Computing	1
CSC 333	Automata, Grammars, and Computability	3	CSC ***	CSC Restricted Elective ⁴	3
ST 370	Probability & Statistics for Engrs	3	ENG 331	Communication for Engr and Tech	3
GEP Requirement*		<u>3</u>	Physical Education/Healthy Living Elective ^E		1
		15	*** **	Other Restricted Elective ⁴	<u>3</u>
					15

SENIOR YEAR

<u>Fall Semester</u>		<u>Credits</u>	<u>Spring Semester</u>		<u>Credits</u>
CSC ***	CSC Restricted Elective ⁴	3	CSC 492	Senior Design Project ⁵	3
CSC ***	CSC Restricted Elective ⁴	3	CSC ***	CSC Restricted Elective ⁴	3
GEP Requirement*		3	*** **	Other Restricted Elective ⁴	3
GEP Requirement*		3	*** **	Free Elective	3
*** **	Other Restricted Elective ⁴	<u>3</u>	GEP Requirement*		<u>3</u>
		15			15

Minimum Credit Hours Required for Graduation 121^{6,I,J,K}

Major/Program requirements and footnotes:

¹Courses required for matriculation (CODA).

²Grade of C or higher required.

³To be selected from CH 201, PY 123, 124, any PY course with a prerequisite of PY 208, or any PB, BIO, MEA, or ZO course.

⁴For CSC and Other Restricted Electives, see: <http://www.csc.ncsu.edu/academics/undergrad/restrict.php>.

⁵CSC 492 is the only course that meets this requirement in all CSC curricula effective August 2008 or thereafter.

⁶The GPA earned in all courses attempted at NCSU must be 2.0 or higher. One of the following two conditions regarding the major GPA is required: 1) the major GPA, which consists of all CSC courses attempted at NCSU, must be 2.0 or higher or 2) a student whose major grade point average is below 2.0 may graduate if no CSC course used to satisfy the major requirements has a grade below a C-.

⁷Grade of C- or higher required.

***General Education Program (GEP) requirements and GEP footnotes:**

To complete the requirements for graduation and the General Education Program, the following category credit hours and co-requisites must be satisfied.

University approved GEP course lists for each of the following categories can be found at

<http://www.ncsu.edu/uap/academic-standards/gep/courselists/index.html>.

- A. **Mathematical Sciences** (6 credit hours – one course with MA or ST prefix)
*Choose from the University approved GEP Mathematical Sciences course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: **MA 141, 241***
 - B. **Natural Sciences** (7 credit hours – include one laboratory course or course with a lab)
*Choose from the University approved GEP Natural Sciences course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: **CH 101, 102, PY 205, 206, 208, 209***
 - C. **Humanities** (6 credit hours selected from two different disciplines/course prefixes)
*Choose from the University approved GEP Humanities course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: **None***
 - D. **Social Sciences** (6 credit hours selected from two different disciplines/course prefixes)
*Choose from the University approved GEP Social Sciences course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: **EC 205 or EC 201 or ARE 201***
 - E. **Physical Education/Healthy Living** (2 credit hours – at least one 100-level Fitness and Wellness Course)
Choose from the University approved GEP Physical Education/Healthy Living course list.
 - F. **Additional Breadth** - (3 credit hours to be selected from the following checked University approved GEP course lists)
 X Humanities/Social Sciences/Visual and Performing Arts or Mathematical Sciences/Natural Sciences/Engineering
 - G. **Interdisciplinary Perspectives** (5-6 credit hours)
*Choose from University approved GEP Interdisciplinary Perspectives course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: **E 102***
 - H. **Introduction to Writing** (4 credit hours satisfied by completing ENG 101 with a C- or better)
- The following Co-Requisites must be satisfied to complete the General Education Program requirements:
- I. **U.S. Diversity**
*Choose from the University approved GEP U.S. Diversity course list or choose a course identified on the approved GEP course lists as meeting the U.S. Diversity (USD) co-requisite. The following course(s) if completed as part of the Major requirements may fulfill this requirement: **None***
 - J. **Global Knowledge**
*Choose from the University approved GEP Global Knowledge course list or choose a course identified on the approved GEP course lists as meeting the Global Knowledge (GK) co-requisite. The following course(s) if completed as part of the Major requirements may fulfill this requirement: **None***
 - K. **Foreign Language proficiency** - Proficiency at the **FL_102** level is required for graduation.

GEP FORMAT B – CURRICULUM REQUIREMENTS

Degree Title: Bachelor of Science in Computer Science
Current Degree Key: 14CSC BS
Effective Date of Revision: 7/2020

MAJOR FIELD OF STUDY REQUIREMENTS:		
Required Courses/Groups/ Electives:	Credit Hours	GEP category, if applicable
<p>Indicate with (C-) if course or course groupings have a C-minus-wall or MGPA requirement</p> <p>Math MA 141 (C), MA 241 (C), MA 242 MA 305 ST 370</p> <p>Sciences CH 101 (C), CH 102 (C) PY 205 (C), PY 206 (C), PY 208, PY 209</p> <p>CSC Major CSC 116 (C) CSC 216 (C) CSC 217 (C) CSC 226 (C) CSC 230 CSC 236 CSC 246 CSC 316 CSC 326 CSC 333 CSC 379 CSC 492</p> <p>Other Major GRP 030 Basic Science (BIO***, CH 201, MEA***, PB***, PY 123, PY 124, PY 328, PY 341, PY 401, PY 402, PY 407, PY 411, PY 412, PY 413, PY 414, PY 415, PY 463, ZO***)</p> <p>GRP 033 CSC Restricted Elective (GRP 031, CSC 302, CSC 312, CSC 342, CSC 401, CSC 402, CSC 405, CSC 406, CSC 409, CSC 411, CSC 412, CSC 413, CSC 415, CSC 416, CSC 417, CSC 419, CSC 422, CSC 431, CSC 440, CSC 441, CSC 450, CSC 451, CSC 453, CSC 454, CSC 455, CSC 456, CSC 460, CSC 461, CSC 462, CSC 467, CSC 471, CSC 474, CSC 481, CSC 482, CSC 484, CSC 485, CSC 495, CSC 499, CSC 5**, ECE 460, ECE 482, ECE 483, ISE 441, MA 416)</p> <p>GRP 702 Other Restricted Elective I (GRP 033, GRP 701, ACC 200, ACC 210, CE 214, CSC 251, CSC 252, CSC 253, CSC 254, CSC 255, CSC 256, CSC 257, CSC 295, ECE 211, ECE 212, GC 200, MAE 2**, MSE 201)</p> <p>GRP 701 Other Restricted Electives II & III (GRP 033, ACC 307, ACC 310, ACC 311, ACC 320, ACC 330, ACC 340,</p>	<p>12 3 3</p> <p>4 8</p> <p>3 3 1 3 3 3 3 3 4 3 1 3</p> <p>3</p> <p>12</p> <p>3</p> <p>6</p>	<p>List GEP category and hours satisfied by a Major requirement</p> <p>Mathematics (6 hours)</p> <p>Natural Sciences (4 hours) Natural Sciences (4 hours)</p>

ARS 306, BUS 300, BUS 305, BUS 307, BUS 320, BUS 330, BUS 335, BUS 340, BUS 346, BUS 360, BUS 367, BUS 4**, CHE 425, CHE 435, CHE 465, CSC 423, CSC 427, CSC 428, EC 3**, EC 4**, EC 5**, ECE 3** (except for ECE 309), ECE 4**, ECE 5**, EMS 480, GC 320, GC 350, GC 420, GN 411, GN 5**, ISE 307, ISE 308, ISE 311, ISE 361, ISE 4**, ISE 5**, LOG 335, LOG 435, LOG 535, MA 301, MA 302, MA 341, MA 351, MA 401, MA 402, MA 403, MA 405, MA 407, MA 408, MA 410, MA 412, MA 413, MA 414, MA 416, MA 425, MA 426, MA 427, MA 428, MA 430, MA 432, MA 435, MA 437, MA 440, MA 5**, MAE 3**, MAE 4**, MAE 5**, MIE 3**, MIE 4**, MSE 3**, MSE 4**, MSE 5**, MUS 306, NE 3**, NE 4**, NE 5**, OR 5**, PHI 425, PSY 307, PSY 320, PSY 340, PSY 400, PSY 420, PSY 425, PY 4**, PY 5**, ST 372, ST 4**, ST 5**)		
ENG 331	3	Satisfies GEP Communication in the Major (Advanced Communication) co-requisite.
<u>Concentration Courses/Groups/Electives:</u>		
<u>Free Electives:</u> EXC 901 Free Elective EXCEPT NOT (CH 111, ECI 105, ENG 110, FLC 1**, FLE 1**, FLF 1**, FLG 1**, FLH 1**, FLI 1**, FLJ 1**, FLK 1**, FLN 1**, FLP 1**, FLR 1**, FLS 1**, GRK 1**, LAT 1**, MA 100, MA 101, MA 103, MA 107, MA 108, MA 111, MA 121, MA 131, MA 231, PY 211, PY 212)	3	
Total credit hours under Major Field of Study: <i>Minimum 27 hours required in program area.</i>	93 hours	
COLLEGE REQUIREMENTS:		
<u>Orientation Course(s):</u> E 101 (C), E 102 (C) E 115	4	Interdisciplinary Perspectives (2 hours) E115 satisfies Technology Fluency requirement
<u>Other:</u> (ex: Adv Communication courses) Economics Elective (EC 205 or EC 201 or ARE 201)	3	Social Science (3 hours)
Total credit hours under College Requirements:	7 hours	

<p align="center">NCSU GENERAL EDUCATION PROGRAM REQUIREMENTS</p> <p><i>Courses in the Major and/or Minor may also fulfill a General Education requirement; however, a GEP category may not be subset to require a specific course from the category list. Required courses must be listed in the Major/College requirements.</i></p> <p><i>Specific courses should not be listed in any of the fields below other than ENG 101.</i></p>		<p>At least one of the following must be listed:</p> <p>¹Choose course(s) from the University Approved GEP course list for this category.</p> <p>²Minimum requirements are satisfied by Major/College course requirements.</p> <p>³Major/College course requirement satisfies X credit hrs of this requirement. Remaining hours required must be chosen from the University Approved GEP course list for the category.</p> <p>⁴Co-requisite is satisfied by a Major/College course requirement.</p> <p>⁵ Choose course(s) from the University Approved GEP course lists for the Humanities, Social Sciences, or Visual & Performing Arts.</p> <p>⁶ Choose course(s) from the University Approved GEP course lists for the Natural and Mathematical Sciences.</p>
General Education Program Requirements: <i>Minimum 39-40 hrs</i>	<i>Credit hours</i>	How will the GEP requirement be met? <i>(choose applicable statement from 1-6 listed above)</i>
Mathematical Sciences (6 credits)	X	

(At least one with MA or ST prefix) Course(s) in the Major may double-count to satisfy this requirement and also satisfy both the Global Knowledge and Diversity co-requisites.		Minimum requirements are satisfied by Major course requirements.
Natural Sciences (7 credits) (At least 1 lab course or course with a lab) Course(s) in the Major may double-count to satisfy this requirement and also satisfy both the Global Knowledge and Diversity co-requisites.	X	Minimum requirements are satisfied by Major course requirements.
English 101 (C- or better required) (4 credits)	4	ENG 101
Humanities (6 credits) (Courses from two different disciplines) Course(s) in the Major may double-count to satisfy this requirement and also satisfy both the Global Knowledge and Diversity co-requisites.	6	Choose courses from the University Approved GEP course list for this category.
Social Sciences (6 credits) (Courses from two different disciplines) Course(s) in the Major may double-count to satisfy this requirement and also satisfy both the Global Knowledge and Diversity co-requisites.	3	Required College course satisfies 3 credit hrs of this requirement. Remaining hours required must be chosen from the University Approved GEP course list for the category.
Additional Breadth (3 credits) (Choose approach that is different from the approach of the Major) Major/College requirements cannot satisfy this requirement and an AB course cannot be double-counted except in satisfying the Global Knowledge and Diversity co-requisites.	3	Choose course(s) from the University Approved GEP course lists for the Humanities, Social Sciences or Visual and Performing Arts.
Interdisciplinary Perspective (5-6 credits) Only course(s) in the Major may double-count to satisfy this requirement.	3	Required College course satisfies 2 credit hrs of this requirement. Remaining hours required must be chosen from the University Approved GEP course list for the category.
Physical Education/Healthy Living (2 credits) (including one Fitness and Wellness course)	2	Choose course(s) from the University Approved GEP course list for this category.
Total credit hours needed to complete GEP that are not satisfied as part of the Major/College requirements.	21 hours	.
GEP Co-Requisites:		Courses taken in the Major, GEP, or Minor may double-count to fulfill the co-requisites. Courses that satisfy the U.S. Diversity* or Global Knowledge** co-requisite are marked on course lists with asterisks as indicated.
U.S. Diversity co-requisite (USD)	n/a	Choose course(s) from the University Approved GEP course list for this category.
Global Knowledge co-requisite (GK)	n/a	Choose course(s) from the University Approved GEP course list for this category.
Foreign Language Proficiency	n/a	Proficiency at the FL_102 level is required.
The following requirements must be satisfied within the College/Program:		
Communication in the Major (Advanced Communication)	X	Satisfied by College/Program Requirements.
Technology Fluency	X	Satisfied by College/Program Requirements.

Total credit hours required to complete Degree: Total must be within 120-128 credit hours.	121 Total hours	As applicable, indicate here the overall GPA requirement for degree completion including course completion.
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GEP FORMAT A
(SEMESTER-BY-SEMESTER CURRICULUM DISPLAY)

Current: X Proposed: Effective Semester: **7/2019**

DEGREE TITLE: B.S. in Computer Science

CONCENTRATION TITLE: n/a

CURRENT DEGREE KEY: 14CSC BS

FRESHMAN YEAR

<u>Fall Semester</u>		<u>Credits</u>	<u>Spring Semester</u>		<u>Credits</u>
CH 101	Chemistry – A Molecular Science ^{1,2,B}	3	CSC 116	Intro. to Computing - Java ²	3
CH 102	General Chemistry Laboratory ^{1,2,B}	1	MA 241	Calculus II ^{1,2,A}	4
E 101	Intro to Engineering & Prob Solving ^{1,7}	1	PY 205	Physics for Engrs & Sci I ^{1,2,B}	3
E 115	Intro to Computing Environments ¹	1	PY 206	Physics for Engrs & Sci I Lab ^{1,2,B}	1
ENG 101	Academic Writing and Research ^{1,7,H}	4	EC 205	Fund of Econ ^D (or EC 201 or ARE 201)	3
MA 141	Calculus I ^{1,2,A}	<u>4</u>	E 102	Engineering in the 21 st Century ^{1,2,G}	<u>2</u>
		14			16

SOPHOMORE YEAR

<u>Fall Semester</u>		<u>Credits</u>	<u>Spring Semester</u>		<u>Credits</u>
CSC 216	Programming Concepts – Java ²	4	CSC 230	C and Software Tools	3
CSC 226	Discrete Mathematics for CSC ²	3	CSC 316	Data Structures for CSC	3
MA 242	Calculus III	4	MA 305	Elementary Linear Algebra	3
PY 208	Physics for Engrs & Sci II ^B	3	GEP Requirement*		3
PY 209	Physics for Engrs & Sci II Lab ^B	1	Basic Science Elective ^{3,B}		<u>3</u>
Physical Education/Healthy Living Elective ^E		<u>1</u>			15
		16			

JUNIOR YEAR

<u>Fall Semester</u>		<u>Credits</u>	<u>Spring Semester</u>		<u>Credits</u>
CSC 236	Comp Org & Assem Lang for CSC	3	CSC 326	Software Engineering	4
CSC 246	Operating Systems for CSC	3	CSC 379	Ethics in Computing	1
CSC 333	Automata, Grammars, and Computability	3	CSC ***	CSC Restricted Elective ⁴	3
ST 370	Probability & Statistics for Engrs	3	ENG 331	Communication for Engr and Tech	3
GEP Requirement*		<u>3</u>	Physical Education/Healthy Living Elective ^E		1
		15	*** **	Other Restricted Elective ⁴	<u>3</u>
					15

SENIOR YEAR

<u>Fall Semester</u>		<u>Credits</u>	<u>Spring Semester</u>		<u>Credits</u>
CSC ***	CSC Restricted Elective ⁴	3	CSC 492	Senior Design Project ⁵	3
CSC ***	CSC Restricted Elective ⁴	3	CSC ***	CSC Restricted Elective ⁴	3
GEP Requirement*		3	*** **	Other Restricted Elective ⁴	3
GEP Requirement*		3	*** **	Free Elective	3
*** **	Other Restricted Elective ⁴	<u>3</u>	GEP Requirement*		<u>3</u>
		15			15

Minimum Credit Hours Required for Graduation 121^{6,I,J,K}

Major/Program requirements and footnotes:

¹Courses required for matriculation (CODA).

²Grade of C or higher required.

³To be selected from CH 201, PY 123, 124, any PY course with a prerequisite of PY 208, or any PB, BIO, MEA, or ZO course.

⁴For CSC and Other Restricted Electives, see: <http://www.csc.ncsu.edu/academics/undergrad/restrict.php>.

⁵CSC 492 is the only course that meets this requirement in all CSC curricula effective August 2008 or thereafter.

⁶The GPA earned in all courses attempted at NCSU must be 2.0 or higher. One of the following two conditions regarding the major GPA is required: 1) the major GPA, which consists of all CSC courses attempted at NCSU, must be 2.0 or higher or 2) a student whose major grade point average is below 2.0 may graduate if no CSC course used to satisfy the major requirements has a grade below a C-.

⁷Grade of C- or higher required.

***General Education Program (GEP) requirements and GEP footnotes:**

To complete the requirements for graduation and the General Education Program, the following category credit hours and co-requisites must be satisfied.

University approved GEP course lists for each of the following categories can be found at

<http://www.ncsu.edu/uap/academic-standards/gep/courselists/index.html>.

- L. Mathematical Sciences** (6 credit hours – one course with MA or ST prefix)
*Choose from the University approved GEP Mathematical Sciences course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: **MA 141, 241***
 - M. Natural Sciences** (7 credit hours – include one laboratory course or course with a lab)
*Choose from the University approved GEP Natural Sciences course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: **CH 101, 102, PY 205, 206, 208, 209***
 - N. Humanities** (6 credit hours selected from two different disciplines/course prefixes)
*Choose from the University approved GEP Humanities course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: **None***
 - O. Social Sciences** (6 credit hours selected from two different disciplines/course prefixes)
*Choose from the University approved GEP Social Sciences course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: **EC 205 or EC 201 or ARE 201***
 - P. Physical Education/Healthy Living** (2 credit hours – at least one 100-level Fitness and Wellness Course)
Choose from the University approved GEP Physical Education/Healthy Living course list.
 - Q. Additional Breadth** - (3 credit hours to be selected from the following checked University approved GEP course lists)
☒ Humanities/Social Sciences/Visual and Performing Arts or ☐ Mathematical Sciences/Natural Sciences/Engineering
 - R. Interdisciplinary Perspectives** (5-6 credit hours)
*Choose from University approved GEP Interdisciplinary Perspectives course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: **E 102***
 - S. Introduction to Writing** (4 credit hours satisfied by completing ENG 101 with a C- or better)
- The following Co-Requisites must be satisfied to complete the General Education Program requirements:
- T. U.S. Diversity**
*Choose from the University approved GEP U.S. Diversity course list or choose a course identified on the approved GEP course lists as meeting the U.S. Diversity (USD) co-requisite. The following course(s) if completed as part of the Major requirements may fulfill this requirement: **None***
 - U. Global Knowledge**
*Choose from the University approved GEP Global Knowledge course list or choose a course identified on the approved GEP course lists as meeting the Global Knowledge (GK) co-requisite. The following course(s) if completed as part of the Major requirements may fulfill this requirement: **None***
 - V. Foreign Language proficiency** - Proficiency at the **FL_102** level is required for graduation.

GEP FORMAT B – CURRICULUM REQUIREMENTS

Degree Title: Bachelor of Science in Computer Science
Current Degree Key: 14CSC BS
Effective Date of Revision: 7/2019

MAJOR FIELD OF STUDY REQUIREMENTS:		
<i>Required Courses/Groups/ Electives:</i>	<i>Credit Hours</i>	<i>GEP category, if applicable</i>
<p>Indicate with (C-) if course or course groupings have a C-minus-wall or MGPA requirement</p> <p>Math MA 141 (C), MA 241 (C), MA 242 MA 305 ST 370</p> <p>Sciences CH 101 (C), CH 102 (C) PY 205 (C), PY 206 (C), PY 208, PY 209</p> <p>CSC Major CSC 116 (C) CSC 216 (C) CSC 226 (C) CSC 230 CSC 236 CSC 246 CSC 316 CSC 326 CSC 333 CSC 379 CSC 492</p> <p>Other Major GRP 030 Basic Science (BIO***, CH 201, MEA***, PB***, PY 123, PY 124, PY 328, PY 341, PY 401, PY 402, PY 407, PY 411, PY 412, PY 413, PY 414, PY 415, PY 463, ZO***)</p> <p>GRP 033 CSC Restricted Elective (GRP 031, CSC 302, CSC 312, CSC 342, CSC 401, CSC 402, CSC 405, CSC 406, CSC 409, CSC 411, CSC 412, CSC 413, CSC 415, CSC 416, CSC 417, CSC 419, CSC 422, CSC 431, CSC 440, CSC 441, CSC 450, CSC 451, CSC 453, CSC 454, CSC 455, CSC 456, CSC 460, CSC 461, CSC 462, CSC 467, CSC 471, CSC 474, CSC 481, CSC 482, CSC 484, CSC 485, CSC 495, CSC 499, CSC 5**, ECE 460, ECE 482, ECE 483, ISE 441, MA 416)</p> <p>GRP 702 Other Restricted Elective I (GRP 033, GRP 701, ACC 200, ACC 210, CE 214, CSC 251, CSC 252, CSC 253, CSC 254, CSC 255, CSC 256, CSC 257, CSC 295, ECE 211, ECE 212, GC 200, MAE 2**, MSE 201)</p> <p>GRP 701 Other Restricted Electives II & III (GRP 033, ACC 307, ACC 310, ACC 311, ACC 320, ACC 330, ACC 340, ARS 306, BUS 300, BUS 305, BUS 307, BUS 320, BUS 330, BUS 335,</p>	<p>12 3 3</p> <p>4 8</p> <p>3 4 3 3 3 3 3 3 4 3 1 3</p> <p>3</p> <p>12</p> <p>3</p> <p>6</p>	<p>List GEP category and hours satisfied by a Major requirement</p> <p>Mathematics (6 hours)</p> <p>Natural Sciences (4 hours) Natural Sciences (4 hours)</p>

BUS 340, BUS 346, BUS 360, BUS 367, BUS 4**, CHE 425, CHE 435, CHE 465, CSC 423, CSC 427, CSC 428, EC 3**, EC 4**, EC 5**, ECE 3** (except for ECE 309), ECE 4**, ECE 5**, EMS 480, GC 320, GC 350, GC 420, GN 411, GN 5**, ISE 307, ISE 308, ISE 311, ISE 361, ISE 4**, ISE 5**, LOG 335, LOG 435, LOG 535, MA 301, MA 302, MA 341, MA 351, MA 401, MA 402, MA 403, MA 405, MA 407, MA 408, MA 410, MA 412, MA 413, MA 414, MA 416, MA 425, MA 426, MA 427, MA 428, MA 430, MA 432, MA 435, MA 437, MA 440, MA 5**, MAE 3**, MAE 4**, MAE 5**, MIE 3**, MIE 4**, MSE 3**, MSE 4**, MSE 5**, MUS 306, NE 3**, NE 4**, NE 5**, OR 5**, PHI 425, PSY 307, PSY 320, PSY 340, PSY 400, PSY 420, PSY 425, PY 4**, PY 5**, ST 372, ST 4**, ST 5**)	3	Satisfies GEP Communication in the Major (Advanced Communication) co-requisite.
ENG 331		
Concentration Courses/Groups/Electives:		
Free Electives: EXC 901 Free Elective EXCEPT NOT (CH 111, ECI 105, ENG 110, FLC 1**, FLE 1**, FLF 1**, FLG 1**, FLH 1**, FLI 1**, FLJ 1**, FLK 1**, FLN 1**, FLP 1**, FLR 1**, FLS 1**, GRK 1**, LAT 1**, MA 100, MA 101, MA 103, MA 107, MA 108, MA 111, MA 121, MA 131, MA 231, PY 211, PY 212)	3	
Total credit hours under Major Field of Study: <i>Minimum 27 hours required in program area.</i>	93 hours	
COLLEGE REQUIREMENTS:		
Orientation Course(s): E 101 (C), E 102 (C) E 115	4	Interdisciplinary Perspectives (2 hours) E115 satisfies Technology Fluency requirement
Other: (ex: Adv Communication courses) Economics Elective (EC 205 or EC 201 or ARE 201)	3	Social Science (3 hours)
Total credit hours under College Requirements:	7 hours	

<p align="center">NCSU GENERAL EDUCATION PROGRAM REQUIREMENTS</p> <p><i>Courses in the Major and/or Minor may also fulfill a General Education requirement; however, a GEP category may not be subset to require a specific course from the category list. Required courses must be listed in the Major/College requirements.</i></p> <p>Specific courses should not be listed in any of the fields below other than ENG 101.</p>		<p>At least one of the following must be listed:</p> <p>¹Choose course(s) from the University Approved GEP course list for this category.</p> <p>²Minimum requirements are satisfied by Major/College course requirements.</p> <p>³Major/College course requirement satisfies X credit hrs of this requirement. Remaining hours required must be chosen from the University Approved GEP course list for the category.</p> <p>⁴Co-requisite is satisfied by a Major/College course requirement.</p> <p>⁵Choose course(s) from the University Approved GEP course lists for the Humanities, Social Sciences, or Visual & Performing Arts.</p> <p>⁶Choose course(s) from the University Approved GEP course lists for the Natural and Mathematical Sciences.</p>
General Education Program Requirements: <i>Minimum 39-40 hrs</i>	Credit hours	How will the GEP requirement be met? (choose applicable statement from 1-6 listed above)
Mathematical Sciences (At least one with MA or ST prefix)	(6 credits) X	Minimum requirements are satisfied by Major course

<i>Course(s) in the Major may double-count to satisfy this requirement and also satisfy both the Global Knowledge and Diversity co-requisites.</i>		<i>requirements.</i>
Natural Sciences (7 credits) (At least 1 lab course or course with a lab) <i>Course(s) in the Major may double-count to satisfy this requirement and also satisfy both the Global Knowledge and Diversity co-requisites.</i>	X	<i>Minimum requirements are satisfied by Major course requirements.</i>
English 101 (C- or better required) (4 credits)	4	ENG 101
Humanities (6 credits) (Courses from two different disciplines) <i>Course(s) in the Major may double-count to satisfy this requirement and also satisfy both the Global Knowledge and Diversity co-requisites.</i>	6	<i>Choose courses from the University Approved GEP course list for this category.</i>
Social Sciences (6 credits) (Courses from two different disciplines) <i>Course(s) in the Major may double-count to satisfy this requirement and also satisfy both the Global Knowledge and Diversity co-requisites.</i>	3	<i>Required College course satisfies 3 credit hrs of this requirement. Remaining hours required must be chosen from the University Approved GEP course list for the category.</i>
Additional Breadth (3 credits) (Choose approach that is different from the approach of the Major) <i>Major/College requirements cannot satisfy this requirement and an AB course cannot be double-counted except in satisfying the Global Knowledge and Diversity co-requisites.</i>	3	<i>Choose course(s) from the University Approved GEP course lists for the Humanities, Social Sciences or Visual and Performing Arts.</i>
Interdisciplinary Perspective (5-6 credits) <i>Only course(s) in the Major may double-count to satisfy this requirement.</i>	3	<i>Required College course satisfies 2 credit hrs of this requirement. Remaining hours required must be chosen from the University Approved GEP course list for the category.</i>
Physical Education/Healthy Living (2 credits) (including one Fitness and Wellness course)	2	<i>Choose course(s) from the University Approved GEP course list for this category.</i>
Total credit hours needed to complete GEP that are not satisfied as part of the Major/College requirements.	21 hours	.
GEP Co-Requisites:		<i>Courses taken in the Major, GEP, or Minor may double-count to fulfill the co-requisites. Courses that satisfy the U.S. Diversity* or Global Knowledge** co-requisite are marked on course lists with asterisks as indicated.</i>
U.S. Diversity co-requisite (USD)	n/a	<i>Choose course(s) from the University Approved GEP course list for this category.</i>
Global Knowledge co-requisite (GK)	n/a	<i>Choose course(s) from the University Approved GEP course list for this category.</i>
Foreign Language Proficiency	n/a	Proficiency at the FL_102 level is required.
The following requirements must be satisfied within the College/Program:		
Communication in the Major (Advanced Communication)	X	Satisfied by College/Program Requirements.
Technology Fluency	X	Satisfied by College/Program Requirements.

Total credit hours required to complete Degree: Total must be within 120-128 credit hours.	121 Total hours	As applicable, indicate here the overall GPA requirement for degree completion including course completion.
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MEMO

To: Dr. Lisa Zapata
Interim Vice-Chancellor
Division of Academic and Student Affairs


From: Dr. Sarah Heckman (sarah_heckman@ncsu.edu)
Director of Undergraduate Programs, Department of Computer Science
Phone: +1.919.515.2042

Date: October 22, 2019


Subject: 14CSC BS Games

We are splitting a lecture-lab course with 4-credit hours (CSC 216) to a separate 3-credit hour lecture (CSC 216) and a 1-credit hour open lab section (CSC 217). We seek to solve two challenges: 1) students interested in transferring CSC 216-equivalent course work from other institutions could not do so if the other course was under 4-credit hours and 2) students who fail CSC 216, while doing well on the labs, have to repeat the lab. By separating the lecture and lab, we provide a transfer pathway for students and can utilize CSC 217 as a transfer course to ensure students are prepared for future major or minor coursework. Additionally, we reduce the need for extra seats in the lecture or lab if students only need to repeat either the lecture or the lab. We are renaming CSC 216 and CSC 217 to reflect the emphasis on software development process.

Proposed effective date: 07/2020



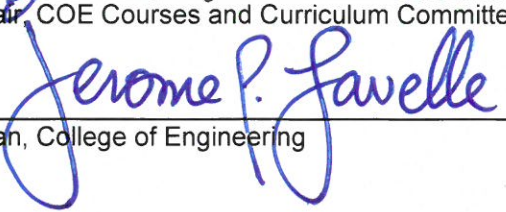
Director of Undergraduate Programs, Computer Science
Date 10/22/2019



Head, Department of Computer Science
Date 10/22/2019



Chair, COE Courses and Curriculum Committee
Date 30 Oct 19



Dean, College of Engineering
Date 10/31/19

Chair, University Courses and Curricula Committee
Date

Office of the Provost
Date

GEP FORMAT A
(SEMESTER-BY-SEMESTER CURRICULUM DISPLAY)

Current: Proposed: X Effective Semester: **7/2020**

DEGREE TITLE: **B.S. in Computer Science**

CONCENTRATION TITLE: Game Development

CURRENT DEGREE KEY: **14CSC BS Games**

FRESHMAN YEAR

<u>Fall Semester</u>		<u>Credits</u>	<u>Spring Semester</u>		<u>Credits</u>
CH 101	Chemistry – A Molecular Science ^{1,2,B}	3	CSC 116	Intro. to Computing - Java ²	3
CH 102	General Chemistry Laboratory ^{1,2,B}	1	MA 241	Calculus II ^{1,2,A}	4
E 101	Intro to Engineering & Prob Solving ^{1,9}	1	PY 205	Physics for Engrs & Sci I ^{1,2,B}	3
E 115	Intro to Computing Environments ¹	1	PY 206	Physics for Engrs & Sci I Lab ^{1,2,B}	1
ENG 101	Academic Writing and Research ^{1,9,H}	4	EC 205	Fund of Econ ^D (or EC 201 or ARE 201)	3
MA 141	Calculus I ^{1,2,A}	<u>4</u>	E 102	Engineering in the 21 st Century ^{1,2,G}	<u>2</u>
		14			16

SOPHOMORE YEAR

<u>Fall Semester</u>		<u>Credits</u>	<u>Spring Semester</u>		<u>Credits</u>
CSC 216	Software Development Fundamentals²	3	CSC 230	C and Software Tools	3
CSC 217	Software Development Fundamentals Lab²	1	CSC 316	Data Structures for CSC	3
CSC 226	Discrete Mathematics for CSC ²	3	MA 305	Elementary Linear Algebra	3
MA 242	Calculus III	4	GEP Requirement*		3
PY 208	Physics for Engrs & Sci II ^B	3	Basic Science Elective ^{3,B}		<u>3</u>
PY 209	Physics for Engrs & Sci II Lab ^B	1			15
	Physical Education/Healthy Living Elective ^E	<u>1</u>			
		16			

JUNIOR YEAR

<u>Fall Semester</u>		<u>Credits</u>	<u>Spring Semester</u>		<u>Credits</u>
CSC 236	Comp Org & Assem Lang for CSC	3	CSC 326	Software Engineering	4
CSC 246	Operating Systems for CSC	3	CSC 379	Ethics in Computing	1
CSC 333	Automata, Grammars, and Computability	3	CSC ***	CSC Games Restricted Elective ^{4,2}	3
ST 370	Probability & Statistics for Engrs	3	ENG 331	Communication for Engr and Tech	3
GEP Requirement*		<u>3</u>	Physical Education/Healthy Living Elective ^E		1
		15	*** **	Games Restricted Elective ⁵	<u>3</u>
					15

SENIOR YEAR

<u>Fall Semester</u>		<u>Credits</u>	<u>Spring Semester</u>		<u>Credits</u>
CSC 461	Computer Graphics ²	3	CSC 492	Senior Design Project ⁷	3
CSC 481	Game Development ²	3	CSC 4**	Advanced Games Elective ^{6,2}	3
GEP Requirement*		3	CSC ***	CSC Games Restricted Elective ^{4,2}	3
GEP Requirement*		3	*** **	Games Restricted Elective ⁵	3
*** **	Games Restricted Elective ⁵	<u>3</u>	GEP Requirement*		<u>3</u>
		15			15

Minimum Credit Hours Required for Graduation 121^{8,I,J,K}

Major/Program requirements and footnotes:

¹Courses required for matriculation (CODA).

²Grade of C or higher required.

³To be selected from CH 201, PY 123, 124, any PY course with a prerequisite of PY 208, or any PB, BIO, MEA, or ZO course.

⁴To be selected from CSC 411, 454, 462, 482, or 582.

⁵To be selected from ENG 282, 288, 376, 377, 492 (Special Topics in Film), COM 427, or MUS 306.

⁶To be selected from CSC 462 or CSC 482. CSC 462 may not be offered every academic year.

⁷CSC 492 is the only course that meets this requirement in all CSC curricula effective August 2008 or thereafter.

⁸The GPA earned in all courses attempted at NCSU must be 2.0 or higher. One of the following two conditions regarding the major GPA is required: 1) the major GPA, which consists of all CSC courses attempted at NCSU, must be 2.0 or higher or 2) a student whose major grade point average is below 2.0 may graduate if no CSC course used to satisfy the major requirements has a grade below a C-.

⁹Grade of C- or higher required.

***General Education Program (GEP) requirements and GEP footnotes:**

To complete the requirements for graduation and the General Education Program, the following category credit hours and co-requisites must be satisfied.

University approved GEP course lists for each of the following categories can be found at

<http://www.ncsu.edu/uap/academic-standards/gep/courselists/index.html>.

- A. **Mathematical Sciences** (6 credit hours – one course with MA or ST prefix)
*Choose from the University approved GEP Mathematical Sciences course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: **MA 141, 241***
- B. **Natural Sciences** (7 credit hours – include one laboratory course or course with a lab)
*Choose from the University approved GEP Natural Sciences course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: **CH 101, 102, PY 205, 206, 208, 209***
- C. **Humanities** (6 credit hours selected from two different disciplines/course prefixes)
*Choose from the University approved GEP Humanities course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: **None***
- D. **Social Sciences** (6 credit hours selected from two different disciplines/course prefixes)
*Choose from the University approved GEP Social Sciences course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: **EC 205 or EC 201 or ARE 201***
- E. **Physical Education/Healthy Living** (2 credit hours – at least one 100-level Fitness and Wellness Course)
Choose from the University approved GEP Physical Education/Healthy Living course list.
- F. **Additional Breadth** - (3 credit hours to be selected from the following checked University approved GEP course lists)
X Humanities/Social Sciences/Visual and Performing Arts or Mathematical Sciences/Natural Sciences/Engineering
- G. **Interdisciplinary Perspectives** (5-6 credit hours)
*Choose from University approved GEP Interdisciplinary Perspectives course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: **E 102***
- H. **Introduction to Writing** (4 credit hours satisfied by completing **ENG 101** with a C- or better)
- The following Co-Requisites must be satisfied to complete the General Education Program requirements:**
- I. **U.S. Diversity**
*Choose from the University approved GEP U.S. Diversity course list or choose a course identified on the approved GEP course lists as meeting the U.S. Diversity (USD) co-requisite. The following course(s) if completed as part of the Major requirements may fulfill this requirement: **None***
- J. **Global Knowledge**
*Choose from the University approved GEP Global Knowledge course list or choose a course identified on the approved GEP course lists as meeting the Global Knowledge (GK) co-requisite. The following course(s) if completed as part of the Major requirements may fulfill this requirement: **None***
- K. **Foreign Language proficiency** - Proficiency at the **FL_102** level is required for graduation.

GEP FORMAT B – CURRICULUM REQUIREMENTS

Degree Title: Bachelor of Science in Computer Science
Current Degree Key: 14CSC BS Games
Effective Date of Revision: 7/2020

MAJOR FIELD OF STUDY REQUIREMENTS:		
<i>Required Courses/Groups/ Electives:</i>	<i>Credit Hours</i>	<i>GEP category, if applicable</i>
<p>Indicate with (C-) if course or course groupings have a C-minus-wall or MGPA requirement</p> <p>Math MA 141 (C), MA 241 (C), MA 242 MA 305 ST 370</p> <p>Sciences CH 101 (C), CH 102 (C) PY 205 (C), PY 206 (C), PY 208, PY 209</p> <p>CSC Major CSC 116 (C) CSC 216 (C) CSC 217 (C) CSC 226 (C) CSC 230 CSC 236 CSC 246 CSC 316 CSC 326 CSC 333 CSC 379 CSC 492</p> <p>Other Major GRP 030 Basic Science (BIO***, CH 201, MEA***, PB***, PY 123, PY 124, PY 328, PY 341, PY 401, PY 402, PY 407, PY 411, PY 412, PY 413, PY 414, PY 415, PY 463, ZO***)</p> <p>ENG 331</p>	<p>12 3 3</p> <p>4 8</p> <p>3 3 1 3 3 3 3 3 4 3 1 3</p> <p>3</p> <p>3</p>	<p>List GEP category and hours satisfied by a Major requirement</p> <p>Mathematics (6 hours)</p> <p>Natural Sciences (4 hours) Natural Sciences (4 hours)</p> <p>Satisfies GEP Communication in the Major (Advanced Communication) co-requisite.</p>
Concentration Courses/Groups/Electives:		
CSC 461 (C) CSC 481 (C) GRP 034 CSC Games Restricted Electives I & II (C) CSC 411, CSC 454, CSC 462, CSC 482, CSC 582) GRP 703 Games Restricted Electives I & II (ENG 282, ENG 288, ENG 376, ENG 377, ENG 492, COM 427, MUS 306) GRP 752 Advanced Games Elective (C) (CSC 462, CSC 482)	<p>3 3 6 9 3</p>	

Total credit hours under Major Field of Study: <i>Minimum 27 hours required in program area.</i>	93 hours	
COLLEGE REQUIREMENTS:		
Orientation Course(s): E 101 (C), E 102 (C) E 115	4	Interdisciplinary Perspectives (2 hours) E115 satisfies Technology Fluency requirement
Other: (ex: Adv Communication courses) Economics Elective (EC 205 or EC 201 or ARE 201)	3	Social Science (3 hours)
Total credit hours under College Requirements:	7 hours	

<p align="center">NCSU GENERAL EDUCATION PROGRAM REQUIREMENTS</p> <p><i>Courses in the Major and/or Minor may also fulfill a General Education requirement; however, a GEP category may not be subset to require a specific course from the category list. Required courses must be listed in the Major/College requirements.</i></p> <p><i>Specific courses should not be listed in any of the fields below other than ENG 101.</i></p>		<p>At least one of the following must be listed:</p> <p>¹Choose course(s) from the University Approved GEP course list for this category.</p> <p>²Minimum requirements are satisfied by Major/College course requirements.</p> <p>³Major/College course requirement satisfies X credit hrs of this requirement. Remaining hours required must be chosen from the University Approved GEP course list for the category.</p> <p>⁴Co-requisite is satisfied by a Major/College course requirement.</p> <p>⁵Choose course(s) from the University Approved GEP course lists for the Humanities, Social Sciences, or Visual & Performing Arts.</p> <p>⁶Choose course(s) from the University Approved GEP course lists for the Natural and Mathematical Sciences.</p>
General Education Program Requirements: <i>Minimum 39-40 hrs</i>	Credit hours	How will the GEP requirement be met? (choose applicable statement from 1-6 listed above)
Mathematical Sciences (6 credits) (At least one with MA or ST prefix) <i>Course(s) in the Major may double-count to satisfy this requirement and also satisfy both the Global Knowledge and Diversity co-requisites.</i>	X	Minimum requirements are satisfied by Major course requirements.
Natural Sciences (7 credits) (At least 1 lab course or course with a lab) <i>Course(s) in the Major may double-count to satisfy this requirement and also satisfy both the Global Knowledge and Diversity co-requisites.</i>	X	Minimum requirements are satisfied by Major course requirements.
English 101 (C- or better required) (4 credits)	4	ENG 101
Humanities (6 credits) (Courses from two different disciplines) <i>Course(s) in the Major may double-count to satisfy this requirement and also satisfy both the Global Knowledge and Diversity co-requisites.</i>	6	Choose courses from the University Approved GEP course list for this category.
Social Sciences (6 credits) (Courses from two different disciplines) <i>Course(s) in the Major may double-count to satisfy this requirement and also satisfy both the Global Knowledge and Diversity co-requisites.</i>	3	Required College course satisfies 3 credit hrs of this requirement. Remaining hours required must be chosen from the University Approved GEP course list for the category.
Additional Breadth (3 credits) (Choose approach that is different from the approach of the Major) <i>Major/College requirements cannot satisfy this requirement and an AB course cannot be double-counted except in satisfying the Global Knowledge and Diversity co-requisites.</i>	3	Choose course(s) from the University Approved GEP course lists for the Humanities, Social Sciences or Visual and Performing Arts.
Interdisciplinary Perspective (5-6 credits) <i>Only course(s) in the Major may double-count to satisfy this requirement.</i>	3	Required College course satisfies 2 credit hrs of this requirement. Remaining hours required must be chosen from the University Approved GEP course list for the

		category.
Physical Education/Healthy Living (2 credits) (including one Fitness and Wellness course)	2	Choose course(s) from the University Approved GEP course list for this category.
Total credit hours needed to complete GEP that are not satisfied as part of the Major/College requirements.	21 hours	.
GEP Co-Requisites:		<i>Courses taken in the Major, GEP, or Minor may double-count to fulfill the co-requisites. Courses that satisfy the U.S. Diversity* or Global Knowledge** co-requisite are marked on course lists with asterisks as indicated.</i>
U.S. Diversity co-requisite (USD)	n/a	Choose course(s) from the University Approved GEP course list for this category.
Global Knowledge co-requisite (GK)	n/a	Choose course(s) from the University Approved GEP course list for this category.
Foreign Language Proficiency	n/a	Proficiency at the FL_102 level is required.
The following requirements must be satisfied within the College/Program:		
Communication in the Major (Advanced Communication)	X	Satisfied by College/Program Requirements.
Technology Fluency	X	Satisfied by College/Program Requirements.

Total credit hours required to complete Degree: Total must be within 120-128 credit hours.	121 Total hours	As applicable, indicate here the overall GPA requirement for degree completion including course completion.
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GEP FORMAT A
(SEMESTER-BY-SEMESTER CURRICULUM DISPLAY)

Current: X Proposed: Effective Semester: **7/2017**

DEGREE TITLE: B.S. in Computer Science

CONCENTRATION TITLE: Game Development

CURRENT DEGREE KEY: 14CSC BS Games

FRESHMAN YEAR

<u>Fall Semester</u>		<u>Credits</u>	<u>Spring Semester</u>		<u>Credits</u>
CH 101	Chemistry – A Molecular Science ^{1,2,B}	3	CSC 116	Intro. to Computing - Java ²	3
CH 102	General Chemistry Laboratory ^{1,2,B}	1	MA 241	Calculus II ^{1,2,A}	4
E 101	Intro to Engineering & Prob Solving ^{1,9}	1	PY 205	Physics for Engrs & Sci I ^{1,2,B}	3
E 115	Intro to Computing Environments ¹	1	PY 206	Physics for Engrs & Sci I Lab ^{1,2,B}	1
ENG 101	Academic Writing and Research ^{1,9,H}	4	EC 205	Fund of Econ ^D (or EC 201 or ARE 201)	3
MA 141	Calculus I ^{1,2,A}	<u>4</u>	E 102	Engineering in the 21 st Century ^{1,2,G}	<u>2</u>
		14			16

SOPHOMORE YEAR

<u>Fall Semester</u>		<u>Credits</u>	<u>Spring Semester</u>		<u>Credits</u>
CSC 216	Programming Concepts – Java ²	4	CSC 230	C and Software Tools	3
CSC 226	Discrete Mathematics for CSC ²	3	CSC 316	Data Structures for CSC	3
MA 242	Calculus III	4	MA 305	Elementary Linear Algebra	3
PY 208	Physics for Engrs & Sci II ^B	3	GEP Requirement*		3
PY 209	Physics for Engrs & Sci II Lab ^B	1	Basic Science Elective ^{3,B}		<u>3</u>
Physical Education/Healthy Living Elective ^E		<u>1</u>			15
		16			

JUNIOR YEAR

<u>Fall Semester</u>		<u>Credits</u>	<u>Spring Semester</u>		<u>Credits</u>
CSC 236	Comp Org & Assem Lang for CSC	3	CSC 326	Software Engineering	4
CSC 246	Operating Systems for CSC	3	CSC 379	Ethics in Computing	1
CSC 333	Automata, Grammars, and Computability	3	CSC ***	CSC Games Restricted Elective ^{4,2}	3
ST 370	Probability & Statistics for Engrs	3	ENG 331	Communication for Engr and Tech	3
GEP Requirement*		<u>3</u>	Physical Education/Healthy Living Elective ^E		1
		15	*** **	Games Restricted Elective ⁵	<u>3</u>
					15

SENIOR YEAR

<u>Fall Semester</u>		<u>Credits</u>	<u>Spring Semester</u>		<u>Credits</u>
CSC 461	Computer Graphics ²	3	CSC 492	Senior Design Project ⁷	3
CSC 481	Game Development ²	3	CSC 4**	Advanced Games Elective ^{6,2}	3
GEP Requirement*		3	CSC ***	CSC Games Restricted Elective ^{4,2}	3
GEP Requirement*		3	*** **	Games Restricted Elective ⁵	3
*** **	Games Restricted Elective ⁵	<u>3</u>	GEP Requirement*		<u>3</u>
		15			15

Minimum Credit Hours Required for Graduation 121^{8,I,J,K}

Major/Program requirements and footnotes:

¹Courses required for matriculation (CODA).

²Grade of C or higher required.

³To be selected from CH 201, PY 123, 124, any PY course with a prerequisite of PY 208, or any PB, BIO, MEA, or ZO course.

⁴To be selected from CSC 411, 454, 462, 482, or 582.

⁵To be selected from ENG 282, 288, 376, 377, 492 (Special Topics in Film), COM 427, or MUS 306.

⁶To be selected from CSC 462 or CSC 482. CSC 462 may not be offered every academic year.

⁷CSC 492 is the only course that meets this requirement in all CSC curricula effective August 2008 or thereafter.

⁸The GPA earned in all courses attempted at NCSU must be 2.0 or higher. One of the following two conditions regarding the major GPA is required: 1) the major GPA, which consists of all CSC courses attempted at NCSU, must be 2.0 or higher or 2) a student whose major grade point average is below 2.0 may graduate if no CSC course used to satisfy the major requirements has a grade below a C-.

⁹Grade of C- or higher required.

***General Education Program (GEP) requirements and GEP footnotes:**

To complete the requirements for graduation and the General Education Program, the following category credit hours and co-requisites must be satisfied.

University approved GEP course lists for each of the following categories can be found at

<http://www.ncsu.edu/uap/academic-standards/gep/courselists/index.html>.

- L. Mathematical Sciences** (6 credit hours – one course with MA or ST prefix)
*Choose from the University approved GEP Mathematical Sciences course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: **MA 141, 241***
 - M. Natural Sciences** (7 credit hours – include one laboratory course or course with a lab)
*Choose from the University approved GEP Natural Sciences course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: **CH 101, 102, PY 205, 206, 208, 209***
 - N. Humanities** (6 credit hours selected from two different disciplines/course prefixes)
*Choose from the University approved GEP Humanities course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: **None***
 - O. Social Sciences** (6 credit hours selected from two different disciplines/course prefixes)
*Choose from the University approved GEP Social Sciences course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: **EC 205 or EC 201 or ARE 201***
 - P. Physical Education/Healthy Living** (2 credit hours – at least one 100-level Fitness and Wellness Course)
Choose from the University approved GEP Physical Education/Healthy Living course list.
 - Q. Additional Breadth** - (3 credit hours to be selected from the following checked University approved GEP course lists)
X Humanities/Social Sciences/Visual and Performing Arts or Mathematical Sciences/Natural Sciences/Engineering
 - R. Interdisciplinary Perspectives** (5-6 credit hours)
*Choose from University approved GEP Interdisciplinary Perspectives course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: **E 102***
 - S. Introduction to Writing** (4 credit hours satisfied by completing ENG 101 with a C- or better)
- The following Co-Requisites must be satisfied to complete the General Education Program requirements:**
- T. U.S. Diversity**
*Choose from the University approved GEP U.S. Diversity course list or choose a course identified on the approved GEP course lists as meeting the U.S. Diversity (USD) co-requisite. The following course(s) if completed as part of the Major requirements may fulfill this requirement: **None***
 - U. Global Knowledge**
*Choose from the University approved GEP Global Knowledge course list or choose a course identified on the approved GEP course lists as meeting the Global Knowledge (GK) co-requisite. The following course(s) if completed as part of the Major requirements may fulfill this requirement: **None***
 - V. Foreign Language proficiency** - Proficiency at the **FL_102** level is required for graduation.

GEP FORMAT B – CURRICULUM REQUIREMENTS

Degree Title: Bachelor of Science in Computer Science
Current Degree Key: 14CSC BS Games
Effective Date of Revision: 7/2017

MAJOR FIELD OF STUDY REQUIREMENTS:		
<i>Required Courses/Groups/ Electives:</i>	<i>Credit Hours</i>	<i>GEP category, if applicable</i>
<p>Indicate with (C-) if course or course groupings have a C-minus-wall or MGPA requirement</p> <p>Math MA 141 (C), MA 241 (C), MA 242 MA 305 ST 370</p> <p>Sciences CH 101 (C), CH 102 (C) PY 205 (C), PY 206 (C), PY 208, PY 209</p> <p>CSC Major CSC 116 (C) CSC 216 (C) CSC 226 (C) CSC 230 CSC 236 CSC 246 CSC 316 CSC 326 CSC 333 CSC 379 CSC 492</p> <p>Other Major GRP 030 Basic Science (BIO***, CH 201, MEA***, PB***, PY 123, PY 124, PY 328, PY 341, PY 401, PY 402, PY 407, PY 411, PY 412, PY 413, PY 414, PY 415, PY 463, ZO***)</p> <p>ENG 331</p>	<p>12 3 3</p> <p>4 8</p> <p>3 4 3 3 3 3 3 4 3 1 3</p> <p>3</p> <p>3</p>	<p>List GEP category and hours satisfied by a Major requirement</p> <p>Mathematics (6 hours)</p> <p>Natural Sciences (4 hours) Natural Sciences (4 hours)</p> <p>Satisfies GEP Communication in the Major (Advanced Communication) co-requisite.</p>
<p>Concentration Courses/Groups/Electives:</p> <p>CSC 461 (C) CSC 481 (C) GRP 034 CSC Games Restricted Electives I & II (C) CSC 411, CSC 454, CSC 462, CSC 482, CSC 582) GRP 703 Games Restricted Electives I & II (ENG 282, ENG 288, ENG 376, ENG 377, ENG 492, COM 427, MUS 306) GRP 752 Advanced Games Elective (C) (CSC 462, CSC 482)</p>	<p>3 3 6 9 3</p>	

Total credit hours under Major Field of Study: <i>Minimum 27 hours required in program area.</i>	93 hours	
COLLEGE REQUIREMENTS:		
Orientation Course(s): E 101 (C), E 102 (C) E 115	4	Interdisciplinary Perspectives (2 hours) E115 satisfies Technology Fluency requirement
Other: (ex: Adv Communication courses) Economics Elective (EC 205 or EC 201 or ARE 201)	3	Social Science (3 hours)
Total credit hours under College Requirements:	7 hours	

<p align="center">NCSU GENERAL EDUCATION PROGRAM REQUIREMENTS</p> <p><i>Courses in the Major and/or Minor may also fulfill a General Education requirement; however, a GEP category may not be subset to require a specific course from the category list. Required courses must be listed in the Major/College requirements.</i></p> <p><i>Specific courses should not be listed in any of the fields below other than ENG 101.</i></p>		<p>At least one of the following must be listed:</p> <p>¹Choose course(s) from the University Approved GEP course list for this category.</p> <p>²Minimum requirements are satisfied by Major/College course requirements.</p> <p>³Major/College course requirement satisfies X credit hrs of this requirement. Remaining hours required must be chosen from the University Approved GEP course list for the category.</p> <p>⁴Co-requisite is satisfied by a Major/College course requirement.</p> <p>⁵Choose course(s) from the University Approved GEP course lists for the Humanities, Social Sciences, or Visual & Performing Arts.</p> <p>⁶Choose course(s) from the University Approved GEP course lists for the Natural and Mathematical Sciences.</p>
General Education Program Requirements: <i>Minimum 39-40 hrs</i>	Credit hours	How will the GEP requirement be met? (choose applicable statement from 1-6 listed above)
Mathematical Sciences (6 credits) (At least one with MA or ST prefix) <i>Course(s) in the Major may double-count to satisfy this requirement and also satisfy both the Global Knowledge and Diversity co-requisites.</i>	X	Minimum requirements are satisfied by Major course requirements.
Natural Sciences (7 credits) (At least 1 lab course or course with a lab) <i>Course(s) in the Major may double-count to satisfy this requirement and also satisfy both the Global Knowledge and Diversity co-requisites.</i>	X	Minimum requirements are satisfied by Major course requirements.
English 101 (C- or better required) (4 credits)	4	ENG 101
Humanities (6 credits) (Courses from two different disciplines) <i>Course(s) in the Major may double-count to satisfy this requirement and also satisfy both the Global Knowledge and Diversity co-requisites.</i>	6	Choose courses from the University Approved GEP course list for this category.
Social Sciences (6 credits) (Courses from two different disciplines) <i>Course(s) in the Major may double-count to satisfy this requirement and also satisfy both the Global Knowledge and Diversity co-requisites.</i>	3	Required College course satisfies 3 credit hrs of this requirement. Remaining hours required must be chosen from the University Approved GEP course list for the category.
Additional Breadth (3 credits) (Choose approach that is different from the approach of the Major) <i>Major/College requirements cannot satisfy this requirement and an AB course cannot be double-counted except in satisfying the Global Knowledge and Diversity co-requisites.</i>	3	Choose course(s) from the University Approved GEP course lists for the Humanities, Social Sciences or Visual and Performing Arts.
Interdisciplinary Perspective (5-6 credits) <i>Only course(s) in the Major may double-count to satisfy this requirement.</i>	3	Required College course satisfies 2 credit hrs of this requirement. Remaining hours required must be chosen from the University Approved GEP course list for the

		category.
Physical Education/Healthy Living (2 credits) (including one Fitness and Wellness course)	2	Choose course(s) from the University Approved GEP course list for this category.
Total credit hours needed to complete GEP that are not satisfied as part of the Major/College requirements.	21 hours	.
GEP Co-Requisites:		<i>Courses taken in the Major, GEP, or Minor may double-count to fulfill the co-requisites. Courses that satisfy the U.S. Diversity* or Global Knowledge** co-requisite are marked on course lists with asterisks as indicated.</i>
U.S. Diversity co-requisite (USD)	n/a	Choose course(s) from the University Approved GEP course list for this category.
Global Knowledge co-requisite (GK)	n/a	Choose course(s) from the University Approved GEP course list for this category.
Foreign Language Proficiency	n/a	Proficiency at the FL_102 level is required.
The following requirements must be satisfied within the College/Program:		
Communication in the Major (Advanced Communication)	X	Satisfied by College/Program Requirements.
Technology Fluency	X	Satisfied by College/Program Requirements.

Total credit hours required to complete Degree: Total must be within 120-128 credit hours.	121 Total hours	As applicable, indicate here the overall GPA requirement for degree completion including course completion.
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MEMORANDUM

TO: Dr. Bret Smith, Interim Dean of University College
Division of Academic and Student Affairs

FROM: Dr. Lynn Worley-Davis, Undergraduate Teaching Coordinator, Prestage Department of Poultry Science and Co-Coordinator, Agricultural Institute Livestock and Poultry Management

RE: Curriculum Action for the Agricultural Institute A.A.S in Livestock and Poultry Management

The Agricultural Institute Livestock and Poultry Management (LPM) program requests the following changes in the Associates of Applied Science (11LPMAAS) Four-semester curriculum display as shown in Format A.

AGI 01 Fall Semester

- Replace ANS 102 with SOC203A or SOC 241A

AGI 01 Spring Semester

- Change ANS 104 OR PO 150 to ANS 104 and PO 150
- Replace ARE 201A and Free Electives with ARE1**Elective OR GEP Humanities / VPA Elective
- Add AGI 191 Professional Development

AGI 02 Fall Semester

- Add ANS 102, ARE 201A, and AGI 192

AGI 02 Spring Semester

- Delete ANS 104, PO 150, SOC 203A or SOC 241A
- Add ARE 115
- Free Electives will be reduced by 4 credit hours

Major/Program Footnotes

- Remove "SOC 241A may be substituted for SOC 203A and PO 201A/202 may be substituted for PO 111".

Justification:

Since Fall 2015 certain required courses have moved as part of scheduling and created class conflicts for students. These courses have been identified and adjusted to avoid future scheduling conflicts and potential delays in completing the LPM degree. Although we are requesting changes to the sequence of the courses, the core program requirements have not changed. The degree requirements currently shown on the OUCC/Registration and Records website is not correct. It shows 63 hours required for the degree not 64 (the 1 credit for PO 202A currently has 0 hours).

In efforts to promote student professional development, two courses are proposed to be added to the curriculum as required courses. These are AGI 191 and AGI 192. Current students should not be

impacted by these changes. Advisors are being proactive and working with current students to address potential shifts in the current Four-semester display.

Attached to the memorandum are supporting documents: Form A - Current Four Semester Display; Form A – Current Four Semester Display w/ Revisions; Form A - Proposed Four Semester Display; Current Degree Audit (which is incorrect and missing one credit for PO 202A); Current Four Semester Display from Registration and Records; and Form B – Curriculum Requirements.

Cc: Dr. Beth Wilson, Director of the Agricultural Institute, Assistant Dean of Academic Programs
Dr. Patricia Curtis, Department Head, Prestage Dept. of Poultry Science
Dr. Todd See, Department Head, Animal Science
Dr. Melissa Merrill, Undergraduate Teaching Coordinator, Animal Science
Mr. Gary Gregory, Co-Coordinator, Agricultural Institute Livestock and Poultry Management
Ms. Alease Hancock, Administrative Student Services Specialist, Agricultural Institute

FORMAT A
(SEMESTER-BY-SEMESTER CURRICULUM DISPLAY)

Indicate display status: Current: x Proposed: Proposed Effective Semester:

Degree/Plan Title: Livestock & Poultry Mgmt-AAS

Concentration/Subplan Title: NA

Plan SIS Code: 11LPMAAS

Subplan SIS Code: NA

New Degree Audit required? (Y or N) N

Critical Path Courses - Identify using the code (CP) which courses are considered critical path courses which represent specific major requirements that are predictive of student success in a given program/plan. Place the (CP) next to the credit hours for the course.

FRESHMAN YEAR (AGI 01)			
FALL SEMESTER	CREDITS	SPRING SEMESTER	CREDITS
AGI 101 Introduction to Agricultural Institute	1	WRT 114 Professional Research and Reporting1,E	3
WRT 111 Expository Writing 1,E	3	MA 103A Topics in Contemporary Mathematics A	3
MAA 102 Mathematics in Ag & Related Sciences2	3	ANS 104 Swine Production OR	3-4
ANS 101 Intro to Livestock & Poultry Industries	3	PO 150 Poultry Management	
ANS 102 Animal Feeds and Nutrition	3	ARE 201A Intro to Ag Economics	3
PO 201A Poultry Science & Production	3	Free Electives4	3
PO 202A Poultry Science & Production Lab	1		
	<i>Total: 17</i>		<i>Total: 15-16</i>
SOPHOMORE YEAR (AGI 02)			
FALL SEMESTER	CREDITS	SPRING SEMESTER	CREDITS
ANS 103 Beef Production	3	ARE1** Ag & Resource Economics Elective3	3
ARE 115 Agribusiness Accounting	3	ANS 104 Swine Production OR	3-4
GEP Humanities / VPA Elective B	3	PO 150 Poultry Management	
HES_*** Health & Exercise Studies CourseD	1	PO 162 Livestock and Poultry Disease	3
ARE1** Ag & Resource Economics Elective3	3	Management	
Free Electives4	3	SOC 203A Current Social Problems OR	3
		SOC 241A Sociology AG and Rural Society	
		Free Electives4	3
	<i>Total:16</i>		<i>Total:15-16</i>
Minimum Credit Hours Required for Graduation*: 64			

Major/Program Footnotes:

1 WRT 111 and WRT 114 must be completed with a C-minus or higher grade for transfer to an NC State baccalaureate program.

2 MAA 102 must be completed with a C- or higher grade.

3 See Degree Audit for ARE elective requirements.

4 See Advisor for Free Elective course selection options.

***General Education Program (GEP) requirements and GEP Footnotes:**

To complete the requirements for graduation and the General Education Program, the following category credit hours and co-requisites must be satisfied.

University approved GEP course lists for each of the following categories can be found at <http://www.ncsu.edu/uap/academic-standards/gep/courselists/index.html>.

- A. **Mathematical Sciences** (3 credit hours)
Choose from the University approved GEP Mathematical Sciences course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: MA103 fulfills the 3 credits Mathematical Sciences
- B. **Humanities/ Fine Arts** (3 credit hours)
Choose from the University approved GEP Humanities course list.
- C. **Social Sciences** (6 credit hours selected from two different disciplines/course prefixes)
Choose from the University approved GEP Social Sciences course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: ARE201 and SOC 203 fulfills the 6 credits of Social Science GEP
- D. **Physical Education/Healthy Living** (1 credit hour)
Choose from the University approved GEP Physical Education/Healthy Living course list.
- E. **Introduction to Writing** (6 credit hours satisfied by completing WRT 111 and WRT 114)

FORMAT A
(SEMESTER-BY-SEMESTER CURRICULUM DISPLAY)

Indicate display status: Current: x W/REVISIONS Proposed: Proposed Effective Semester:

Degree/Plan Title: Livestock & Poultry Mgmt-AAS

Concentration/Subplan Title: NA

Plan SIS Code: 11LPMAAS

Subplan SIS Code: NA

New Degree Audit required? (Y or N) N

Critical Path Courses - Identify using the code (CP) which courses are considered critical path courses which represent specific major requirements that are predictive of student success in a given program/plan. Place the (CP) next to the credit hours for the course.

FRESHMAN YEAR (AGI 01)			
FALL SEMESTER	CREDITS	SPRING SEMESTER	CREDITS
AGI 101 Introduction to Agricultural Institute	1	WRT 114 Professional Research and Reporting1,E	3
WRT 111 Expository Writing 1,E	3	MA 103A Topics in Contemporary Mathematics A	3
MAA 102 Mathematics in Ag & Related Sciences2	3	ANS 104 Swine Production OR (delete)	3-4 4
ANS 101 Intro to Livestock & Poultry Industries	3	PO 150 Poultry Management	3
ANS 102 Animal Feeds and Nutrition (delete)	3	ARE 201A Intro to Ag Economics (delete)	3
SOC 203A Current Social Problems OR	3	Free Electives4 (delete)	3
SOC 241A Sociology AG and Rural Society (add)	3	ARE1** Ag & Resource Economics Elective3 (add)	3
PO 201A Poultry Science & Production	3	AGI 191 Professional Development (add)	1
PO 202A Poultry Science & Production Lab	1		
	<i>Total: 17</i>		<i>Total: 15-16 (17)</i>
SOPHOMORE YEAR (AGI 02)			
FALL SEMESTER	CREDITS	SPRING SEMESTER	CREDITS
ANS 103 Beef Production	3	ARE1** Ag & Resource Economics Elective3	3
ARE 115 Agribusiness Accounting (delete)	3	ANS 104 Swine Production OR (delete)	3-4
GEP Humanities / VPA Elective B OR	3	PO 150 Poultry Management	
ARE1** Ag & Resource Economics Elective3		PO 162 Livestock and Poultry Disease Management	3
HES_*** Health & Exercise Studies CourseD	1	SOC 203A Current Social Problems OR	3
Free Electives4 (delete)	3	SOC 241A Sociology AG and Rural Society	
ANS 102 Animal Feeds and Nutrition (add)	3	Free Electives4	3-5-7
ARE 201A Intro to Ag Economics (add)	3	ARE 115 Agribusiness Accounting (add)	3
AGI 191 Professional Development (add)	1-3		
	<i>Total:16</i> <i>14-16</i>		<i>Total: 15-16</i> <i>14-16</i>
Minimum Credit Hours Required for Graduation*: 64			

Major/Program Footnotes:

1 WRT 111 and WRT 114 must be completed with a C-minus or higher grade for transfer to an NC State baccalaureate program.

2 MAA 102 must be completed with a C- or higher grade.

3 See Degree Audit for ARE elective requirements.

4 See Advisor for Free Elective course selection options.

***General Education Program (GEP) requirements and GEP Footnotes:**

To complete the requirements for graduation and the General Education Program, the following category credit hours and co-requisites must be satisfied.

University approved GEP course lists for each of the following categories can be found at <http://www.ncsu.edu/uap/academic-standards/gep/courselists/index.html>.

A. Mathematical Sciences (3 credit hours)

Choose from the University approved GEP Mathematical Sciences course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: MA103 fulfills the 3 credits Mathematical Sciences

B. Humanities/ Fine Arts (3 credit hours)

Choose from the University approved GEP Humanities course list.

- C. **Social Sciences** (6 credit hours selected from two different disciplines/course prefixes)
Choose from the University approved GEP Social Sciences course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: ARE201 and SOC 203 fulfills the 6 credits of Social Science GEP
- D. **Physical Education/Healthy Living** (1 credit hour)
Choose from the University approved GEP Physical Education/Healthy Living course list.
- E. **Introduction to Writing** (6 credit hours satisfied by completing WRT 111 and WRT 114)

FORMAT A
(SEMESTER-BY-SEMESTER CURRICULUM DISPLAY)

Indicate display status: Current: Proposed: x Proposed Effective Semester: Spring 2020

Degree/Plan Title: Livestock & Poultry Mgmt-AAS

Concentration/Subplan Title: NA

Plan SIS Code: 11LPMAAS

Subplan SIS Code: NA

New Degree Audit required? (Y or N) Y

Critical Path Courses - Identify using the code (CP) which courses are considered critical path courses which represent specific major requirements that are predictive of student success in a given program/plan. Place the (CP) next to the credit hours for the course.

FRESHMAN YEAR (AGI 01)			
FALL SEMESTER	CREDITS	SPRING SEMESTER	CREDITS
AGI 101 Introduction to Agricultural Institute	1	WRT 114 Professional Research and Reporting1,E	3
WRT 111 Expository Writing 1,E	3	MA 103A Topics in Contemporary MathematicsA	3
MAA 102 Mathematics in Ag & Related Sciences2	3	ANS 104 Swine Production	4
ANS 101 Intro to Livestock & Poultry Industries	3	PO 150 Poultry Management	3
PO 201A Poultry Science & Production	3	ARE1** Ag & Resource Economics Elective3 OR	3
PO 202A Poultry Science & Production Lab	1	GEP Humanities / VPA Elective B	
SOC 203A Current Social Problems OR	3	AGI 191 Professional Development	1
SOC 241A Sociology AG and Rural Society			
	Total: 17		Total: 17
SOPHOMORE YEAR (AGI 02)			
FALL SEMESTER	CREDITS	SPRING SEMESTER	CREDITS
ANS 103 Beef Production	3	ARE1** Ag & Resource Economics Elective3	3
ANS 102 Animal Feeds and Nutrition	3	ARE 115 Agribusiness Accounting	3
ARE 201A Intro to Ag Economics	3	PO 162 Livestock and Poultry Disease	3
ARE1** Ag & Resource Economics Elective3 OR	3	Management	
GEP Humanities / VPA Elective B		Free Electives4	5-7
HES_*** Health & Exercise Studies CourseD	1		
AGI 192 AGI External Learning Experience	1-3		
	Total:14-16		Total:14-16
Minimum Credit Hours Required for Graduation*: 64			

Major/Program Footnotes:

- 1 WRT 111 and WRT 114 must be completed with a C-minus or higher grade for transfer to an NC State baccalaureate program.
- 2 MAA 102 must be completed with a C- or higher grade.
- 3 See Degree Audit for ARE elective requirements.
4. See Advisor for Free Elective course selection options.

***General Education Program (GEP) requirements and GEP Footnotes:**

To complete the requirements for graduation and the General Education Program, the following category credit hours and co-requisites must be satisfied. University approved GEP course lists for each of the following categories can be found at <http://www.ncsu.edu/uap/academic-standards/gep/courselists/index.html>.

- A. **Mathematical Sciences** (3 credit hours)
Choose from the University approved GEP Mathematical Sciences course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: MA103A fulfills the 3 credits Mathematical Sciences
- B. **Humanities/ Fine Arts** (3 credit hours)
Choose from the University approved GEP Humanities course list.
- C. **Social Sciences** (6 credit hours selected from two different disciplines/course prefixes)
Choose from the University approved GEP Social Sciences course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: ARE201A and SOC 203A or SOC 241A fulfills the 6 credits of Social Science GEP
- D. **Physical Education/Healthy Living** (1 credit hour)
Choose from the University approved GEP Physical Education/Healthy Living course list.
- E. **Introduction to Writing** (6 credit hours satisfied by completing WRT 111 and WRT 114)

64

Livestock and Poultry Management(11LPMAAS): 63 Total Units

Plan effective as of: Fall 2015

View Semester by Semester Plan

Orientation [1 Hr] (1 Units)

AGI 101 - Introduction to the Agricultural Institute (1 units)

English [6 Hrs] (6 Units)

WRT 111 - Expository Writing (3 units: C- or better)

WRT 114 - Professional Writing, Research and Reporting (3 units: C- or better)

Mathematics [6 Hrs] (6 Units)

MAA 102 - Mathematics in Agriculture and Related Sciences (3 units: C- or better)

MA 103 - Topics in Contemporary Mathematics (3 units)

General Requirements [12 Hrs] (12 Units)

ARE 201 - Introduction to Agricultural & Resource Economics (3 units)

ARE 115 - Agribusiness Accounting (3 units)

Sociology (3 units)

Humanities/VPA Elective (3 units)

Physical Education [1 Hr] (1 Units)

HESF Elective (1 units) [S Allowed]

Major Requirements [28 Hrs] (28 Units)

ANS 103 - Beef Production (3 units)

ANS 104 - Swine Production (4 units)

PO 101 - Introduction to Livestock and Poultry Industries (3 units)

PO 102 - Animal Feeds and Nutrition (3 units)

PO 201A - Poultry Science and Production (3 units)

PO 202A - Poultry Science and Production Laboratory (0 units)

PO 150 - Poultry Management (3 units)

PO 162 - Livestock and Poultry Disease Management (3 units)

ARE Electives (6 units)

Free Electives [10 Hrs] (9 Units)

Free Electives (9 units) [S Allowed]

Total Units: 63

64

Agricultural Institute – Livestock & Poultry Management (AAS) (11LPMAAS)

First Year

Fall Semester	Credit	Spring Semester	Credit
AGI 101 Introduction to Agricultural Institute	1	WRT 114 Professional Writing, Res. & Reporting ^{1,E}	3
WRT 111 Expository Writing ^{1,E}	3	MA 103A Topics in Contemporary Math ^A	3
MAA 102 Math in Agric. & Related Sciences ²	3	ANS 104 Swine Production or PO 150 Poultry Management	4 or 3
ANS 101 Introduction to Livestock and Poultry Industries	3	ARE 201A Intro Agri Resource Economics ^C	3
ANS 102 Animal Feeds and Nutrition	3	Free Electives	3
PO 201A Poultry Science & Production	3		
PO 202A Poultry Science & Production Lab	1		
	17		15-16

Second Year

Fall Semester	Credit	Spring Semester	Credit
ANS 103 Beef Production	3	ARE 1** Elective ³	3
ARE 115 Agribusiness Accounting	3	SOC 203A Current Social Problems ^C OR SOC 241A Sociology Ag & Rural Society ^C	3
GEP Humanities/VPA Elective ^B	3	ANS 104 Swine Production or PO 150 Poultry Management	4 or 3
HES_***Health & Exercise Studies Course ^D	1	PO 162 Livestock & Poultry Disease Mngmt	3
ARE 1** Ag & Resource Econ Elective ³	3	Free Elective ⁴	3
Free Elective ⁴	3		
	16		15-16

Minimum Credit Hours Required for Graduation*: 64

Major/Program Footnotes

¹ **WRT 111** and **WRT 114** must be completed with a C-minus or higher grade for transfer to an NC State baccalaureate program.

² **MAA 102** must be completed with a C- or higher grade.

³ See Degree Audit for ARE elective requirements.

⁴ **SOC 241A** may be substituted for **SOC 203A** and **PO 201A/202** may be substituted for **PO 111**.

⁵ See Advisor for free elective course selection options.

*** General Education Program (GEP) requirements and GEP Footnotes**

To complete the requirement for graduation and the General Education Program, the following category credit hours must be satisfied. University approved GEP course lists for each of the following categories can be found at <https://oucc.dasa.ncsu.edu/general-education-program/>.

A. **Mathematical Sciences** (3 credit hours) **MA 103** fulfills the 3 credits of Mathematical Sciences.

B. **Humanities/Fine Arts** (3 credit hours)

Choose from the University approved GEP Humanities or GEP Visual and Performing Arts course list

C. **Social Sciences** (6 credit hours) **ARE 201** and **SOC 203** fulfill 6 credits of Social Science GEP.

D. **Health and Exercise Studies** (1 credit hour)

Choose from the University approved GEP Health & Exercise Studies course list

E. **Introduction to Writing** (6 credit hours satisfied to by completing **WRT 111** and **WRT 114**)

CURRICULUM REQUIREMENTS

Format B

<u>Degree/Plan Title:</u> AAS - Livestock & Poultry Management	<u>Plan SIS Code:</u> 11LPMAAS
<u>Concentration/Subplan Title:</u>	<u>Subplan SIS Code:</u>
<u>Indicate requirements status:</u> Current: Proposed: x	<u>Proposed</u> Effective Semester: Spring 2020
<u>New Degree Audit required?</u> (Y or N) Y	
<u>Critical Path Courses</u> - Identify using the code (CP) which courses are considered critical path courses which represent specific major requirements that are predictive of student success in a given program/plan. Place the (CP) next to the credit hours for the course.	

MAJOR FIELD OF STUDY REQUIREMENTS:		
<i>Required Courses/Groups/ Electives:</i>	<i>Credit Hours</i>	<i>GEP category, if applicable</i>
Indicate if course or course groupings have a C-wall or MGPA requirement and which are considered Critical Path courses – indicate with (CP) next to applic. course.		List GEP category and hours satisfied by a Major requirement
MAA 102 Mathematics in Ag & Related Sciences MA 103A Topics in Contemporary Mathematics WRT 111 Expository Writing WRT 114 Professional Research and Reporting ANS 101 Intro to Livestock & Poultry Industries ANS 104 Swine Production ANS 103 Beef Production ANS 102 Animal Feeds and Nutrition PO 201A Poultry Science & Production PO 202A Poultry Science & Production Lab PO 150 Poultry Management PO 162 Livestock and Poultry Disease Management ARE 201A Intro to Ag Economics ARE 115 Agribusiness Accounting SOC 203A Current Social Problems OR SOC 241A Sociology AG and Rural Society GEP Humanities / VPA Elective HES_*** Health & Exercise Studies Course AGI 101 Introduction to Agricultural Institute AGI 191 Professional Development AGI 192 AGI External Learning Experience	3 3 3 3 3 4 3 3 3 1 3 3 3 3 3 3 1 1 1 1-3	Mathematical Sciences (3) English 101 (3) English 101 (3) Social Sciences (3) Social Sciences (3) Humanities (3) Health and Exercise Studies (1) Major Requirements (51-53)
<u>Concentration Courses/Groups/Electives:</u> ARE1** Ag & Resource Economics Elective	6	
<u>Free Electives:</u>	5-7	
Total credit hours under Major Field of Study: <i>Minimum 27 hours required in program area.</i>	64 hours	

COLLEGE REQUIREMENTS:		
Orientation Course(s): AGI 101	1	
Other:		
Total credit hours under College Requirements:	11 Hours	

NCSU GENERAL EDUCATION PROGRAM REQUIREMENTS

Courses in the Major and/or Minor may also fulfill a General Education requirement; however, a GEP category may not be subset to require a specific course from the category list. Required courses must be listed in the Major/College requirements.

Specific courses should not be listed in any of the fields below other than ENG 101.

At least one of the following must be listed:

- 1 Choose course(s) from the University Approved GEP course list for this category.
- 2 Minimum requirements are satisfied by Major/College course requirements.
- 3 Major/College course requirement satisfies X credit hrs of this requirement. Remaining hours required must be chosen from the University Approved GEP course list for the category.
- 4 Co-requisite is satisfied by a Major/College course requirement.
- 5 Choose course(s) from the University Approved GEP course lists for the Humanities/ Social Sciences/ Visual & Performing Arts.
- 6 Choose course(s) from the University Approved GEP course lists for Natural Sciences/Mathematical Sciences.

General Education Program Requirements: <i>Minimum 39-40 hrs</i>	Credit hours	How will the GEP requirement be met? (Choose applicable statement from 1-6 listed above)
Mathematical Sciences (6 credits) (At least 1 course with MA or ST prefix) Course(s) in the Major may double-count to satisfy this requirement and also satisfy either the Global Knowledge or U.S. Diversity co-requisites.	3	(Choose statement 1, 2 or 3) Minimum requirements are satisfied by Major/College course requirements.
Natural Sciences (7 credits) (At least 1 lab course or course with a lab) Course(s) in the Major may double-count to satisfy this requirement and also satisfy either the Global Knowledge or U.S. Diversity co-requisites.	0	(Choose statement 1, 2 or 3) NA
English 101 (C- or better required) (4 credits)	4	ENG 101 (WRT 111 + WRT 114)
Humanities (6 credits) (Courses from two different disciplines) Course(s) in the Major may double-count to satisfy this requirement and also satisfy either the Global Knowledge or U.S. Diversity co-requisites.	3	(Choose statement 1, 2 or 3) Choose course(s) from the University Approved GEP course list for this category.
Social Sciences (6 credits) (Courses from two different disciplines) Course(s) in the Major may double-count to satisfy this requirement and also satisfy either the Global Knowledge or U.S. Diversity co-requisites.	6	(Choose statement 1, 2 or 3) Minimum requirements are satisfied by Major/College course requirements.
Additional Breadth (3 credits) (Choose approach that is different from the approach of the Major) Major/College requirements cannot satisfy this requirement and an AB course cannot be double-counted except in satisfying the Global Knowledge or U.S. Diversity co-requisites.	0	(Choose statement 5 or 6) NA
Interdisciplinary Perspectives (5 credits) Course(s) in the Major may double-count to satisfy this requirement and also satisfy either the Global Knowledge or U.S. Diversity co-requisites.	0	(Choose statement 1, 2 or 3) NA
Health and Exercise Studies (2 credits) (Including one Fitness and Wellness course)	1	Choose course(s) from the University Approved GEP course list for this category.
Total credit hours needed to complete GEP that are not satisfied as part of the Major/College requirements.	11 Hours	
GEP Co-Requisites:		Courses taken in the Major, GEP, or Minor may double-count to fulfill the co-requisites. Courses that satisfy the U.S. Diversity or Global Knowledge co-requisite are marked on course lists with a "USD" or "GK" indicator.
U.S. Diversity co-requisite (USD)	n/a	(Choose statement 1 or 4) 3
Global Knowledge co-requisite (GK)	n/a	(Choose statement 1 or 4) 0

Foreign Language Proficiency	n/a	Proficiency at the FL_102 level required. N/A
The following requirements must be satisfied within the College/Program:		Place an X in the credit hour box to indicate below that the requirement is "Satisfied by College/Program Requirements"
Communication in the Major (Advanced Communication)	0	Satisfied by College/Program Requirements
Technology Fluency	23	Satisfied by College/Program Requirements
Total credit hours required to complete Degree: Total must be within 120-128 credit hours.	64 Total hours	As applicable, indicate here the overall GPA requirement for degree completion including course completion.