1. Dr. Wise asked for any revisions to the minutes (November 21, 2008).

   Motion was made by Dr. Burnette Hamil and seconded by Dr. Nick Younan to accept the minutes.

   Minutes were approved by acclamation.

   Dr. Louis D’Abramo pointed out that all minutes of previous Graduate Council meetings are available for viewing/downloading on the Graduate School website, including all pertinent attachments.

2. University Committee on Courses and Curricula (UCCC)

   - Bachelor of Science in Computer Science, program modification
   - Bachelor of Science in Software Engineering, program modification
   - Master of Science in Computer Science, program modification

   Dr. Tim Chamblee explained that the three degree program modifications listed above go together as they represent the first proposal for the combined BS/MS degree program to come forward. He pointed out that the information about the combined degree is detailed in the Undergraduate Catalogue but there is nothing listed in the Graduate Bulletin. Should the same information be included in the Graduate Bulletin? It was the decided that this issue will be examined by the Graduate School while the Graduate Council will move forward with the combined BS/MS degree program. Dr. Wise called for a motion.

   Dr. Younan made a motion to approve the modifications to the Bachelor of Science in Computer Science, the Bachelor of Science in Software Engineering and the Master of Science in Computer Engineering together as they represent the new combined Bachelor of Science/Master of Science degree program. The motion was seconded by Dr. William Batchelor.
This is the first proposal of this type to come before the Graduate Council but others are expected to follow. This combined bachelor/master’s degree program proposal was modeled according to the guidelines that were approved during a previous Graduate Council meeting and merely modifies existing degree programs.

The three program modifications were approved.

- Master of Arts in Interdisciplinary Sciences (MAIS), new program

Dr. Wise asked for a brief summary of this new degree program. Dr. Mark Binkley stated that the MAIS is specifically geared toward teachers, K through 12. It is modeled after the Teachers in Geosciences program and the Master of Science in General Biology. The new program expands on the course offerings to meet the needs of teachers who will be able to choose from four different concentrations (chemistry, biological sciences, mathematics, and geosciences). This new program will allow teachers to acquire much needed science knowledge to ensure their success in the classroom.

Discussion followed. Dr. Meghan Millea raised the question of whether a separate distinction in the numerical course prefixes should be made to identify the subject classes taken under the MAIS. For example, the transcript of a MAIS student may show that he/she has taken 18 hours of graduate mathematics classes. The rigor of those classes may not be the same as mathematics classes taken outside the MAIS degree; however, without a distinction, no one would know that. Under this scenario, a MAIS student could conceivably be hired as an instructor of mathematics at the Community College level (18 hours of graduate math).

Discussion ensued around the target group for the degree program and how enrollment will be restricted to those who are actually admitted into the program. Dr. Hamil stated that restricting subject courses to MAIS students would be a hardship for currently enrolled education graduate students who already have a difficult time finding content courses for a master’s degree. Changes in the prefix would also make certification for teachers difficult at the State Department of Education.

Animated discussion continued for some time. Dr. Wise called for a motion regarding the MAIS program.

Dr. Batchelor made a motion to approve the Master of Arts in Interdisciplinary Sciences. The motion was seconded by Dr. Younan.

Graduate Council members voted and the vote was split evenly, six members voted yea and six members voted nay.

Dr. Millea made a motion to table the MAIS degree program and discuss it again at the next Graduate Council meeting. Dr. Hamil seconded the motion.

The motion passed by acclamation and the MAIS degree program was tabled.
• Master of Science in Agriculture: Engineering Technology, new concentration

Dr. Batchelor made a motion to approve the new concentration of Engineering Technology for the Master of Science in Agriculture. Dr. Larry Barrow seconded the motion.

No discussion was necessary. The Graduate Council voted and the motion passed by acclamation. The new concentration for the Master of Science in Agriculture was approved.

• Doctor of Philosophy in Agricultural Sciences; Engineering Technology, new concentration.

Dr. Daniel Reynolds made a motion to approve the new concentration of Engineering Technology for the Doctor of Philosophy in Agriculture. Dr. Ratnasingham Shivaji seconded the motion.

No discussion was necessary. The new concentration of Engineering Technology for the Doctor of Philosophy in Agriculture was approved.

• Master of Science in Civil Engineering and PhD in Engineering (Civil Engineering), AOCE Approval

Graduate Council members did not have the opportunity to review these two programs beforehand. Therefore, Dr. Millea made a motion to table the degree programs until the next meeting. The motion was seconded by Dr. Shivaji.

The Graduate Council voted and the motion passed by acclamation.

3. Report from the Office of the Graduate School (OGS) (Handouts)

Dr. D’Abramo presented the following report:

a) The OGS website is in operation now. Your comments and/or suggestions are welcomed.

b) A total of 8 Graduate Recruitment Assistance Grants (GRAGs) have been awarded. The recipients have been announced on the OGS website.

c) Official enrollment for Spring 2009 is 3,240. That is down 44 students from Spring 2008. Of those students, 305 are currently on assistantship. There are 577 new students this term.
d) 85% of all applications are now online (91% international). The goal is 100% of applications processed online. However, steady progress is being made as the number of online applications at this time last year was 75%.

e) A total of 297 students graduated in December 2008; that breaks down to 242 Masters, Educational Specialists and 46 Doctorates.

f) Currently, the total number of doctoral students for the doctoral academic year (starts in the summer for reporting purposes) is 79 (72 for 2007-08). If the numbers for May graduation from the previous year are any indication, we may reach a total of 130 for the 2008-2009 academic year.

g) Sixty-five students attended the New Graduate Student Orientation.

h) The General TA Workshop had 47 participants. Surveys of opinion are currently being evaluated and revisions to the workshop will be made as needed. Ten students passed the TA1 level of the workshop; 31 students passed level TA2/TA3; and 6 students did not pass at any level. Of 36 classroom evaluations, 3 students did not pass.

i) The College of Education will move to BANNER production for the Workflow and X-tender processing of graduate admission applications effective Monday, February 2, 2009. In addition, the workshop training sessions were held with the remaining departments in the College of Engineering and the College of Forest Resources in December 2008. The workshop training session with the College of Arts and Sciences will be held in February.

j) With the goal of reducing delays, all applications for continuing education will soon initially be processed through the Office of the Graduate School.

k) OGS is hiring a new admissions assistant, the new person should be on staff by April.

l) Approximately 200 participants were involved in a very successful 2009 AGEM Winter Symposium that was held in Jackson on January 22-24, 2009. Drs. Person and Wise serve as Co-PI’s for that program and Ms. Shlynn Morris serves as the MSU AGEM Coordinator.

m) Special thanks to Drs. Bailey (chair), Millea, and Silva for their detailed attention to a rather complicated appeal of academic status. This matter has been resolved at the dean’s level.

4. Report from Graduate Student Association (GSA)

Mr. Terence West, GSA President, presented the following report:
The first GSA meeting this semester was last Tuesday, January 27, 2009. In line with our goal to feature different speakers at GSA meetings, a representative from the Dean of Students Office gave a presentation on the Honor Code and how it affects graduate students.

The Graduate Student Symposium is scheduled for April 3 and the Graduate Student Banquet is going to be held on April 21, 2009. More detailed information is available on our website.

GSA meeting attendance has improved. On average, we now have at least 25 students participate compared to last year’s average of 10 students. Another goal for the GSA is to have a representative from each department become an active member of the organization. We are asking department heads to help identify potential members.

Dr. D’Abramo added that the research symposium will be moved to the fall semester after the upcoming symposium this semester. Input from Graduate Coordinators and students suggests that moving the symposium to the fall semester will make it easier to schedule the time required for participation.

5. Old Business

   a) Review of Criteria for Graduate Faculty Membership (Subcommittee Report: Bailey)

      Dr. Wise stated that a subcommittee consisting of Drs. Hamil, Barrow, Millea and Bailey will submit a report for the next Graduate Council meeting.

6. New Business

   a) Application of Honor Code to Graduate Students (Millea)

      Dr. Millea explained that this is really a combination of Honor Code and AOP 12.01 (withdrawal from courses) bought forth by a subcommittee of the Faculty Senate. A faculty member notified the Honors Council regarding an honor code violation by a graduate student and the student was found guilty of misconduct. Then the student simply withdrew from the class by citing that the instructor did not give significant assessment by the 30th day of the class.

      Dr. Millea asked Graduate Council to examine whether AOP 12.01 should apply to graduate students in the same way it applies to undergraduate students.

      Dr. Wise formed a subcommittee consisting of Drs. Ponder (chair), Reynolds and Shivaji. The subcommittee will review AOP 12.01 and draft language changes to make it more appropriate to graduate students.

   b) Withdrawal from the University (Younan -handout)

      Dr. Younan stated that the withdrawal form is approved at the Dean’s level and sometimes departments are not aware of a student’s withdrawal until they get a copy of
the withdrawal form. He made a request on behalf of the Bagley College of Engineering to have the departments approve a withdrawal request before it goes to the dean’s office.

Dr. Chamblee stated that the withdrawal form is tied to an AOP and making changes is not as simple as adding a signature line. Dr. Younan withdrew his request. Adjustments can be made internally to ensure that departments are aware of any withdrawal requests by graduate students.

c) Academic Fresh Start for Graduate Students (D’Abramo – Handout)

Dr. D’Abramo asked Graduate Council members to review a handout regarding an Academic Amnesty Proposal for Graduate Students. The proposal will be discussed at a later date.

Meeting adjourned at 3:05 p.m.

The date for the next Graduate Council meeting has been set for February 27, 2009, at 1:30 p.m. in 611 Allen Hall.
DEGREE PROGRAMS

MISSISSIPPI STATE UNIVERSITY

NOTE: This form is a cover sheet that must accompany the degree program change proposal. The actual proposal should be prepared in accordance with format requirements provided in the Guide and Format for Curriculum Proposals published by the UCCC. Both cover sheet and proposal should be submitted, along with all required copies, to UCCC, Butler-Williams Building, Suite B, 100 Walker Road, Mail Stop 9699 (325-0831).

College or School: Ag & Life Sciences
Department: Ag. & Biological Engineering
Contact Person: Jeremiah Davis
Mail Stop: 9632
Nature of Change: Modify
E-mail: jdavis@abe.msstate.edu
Current Degree Program Name: Doctor of Philosophy in Agricultural Sciences
Date Initiated: 10/15/08 Effective Date: 01/01/09

Concentration:

Concentration: Doctor of Philosophy in Agricultural Sciences

Concentration: Engineering Technology

Summary of Proposed Changes:
The Department of Agricultural & Biological Engineering would like to create a new concentration under the CALS umbrella Doctor of Philosophy in Agricultural Sciences.

Doctor of Philosophy in Agricultural Sciences, Concentration in Engineering Technology

Approved: ________________________________ Date: 10-20-08
Department Head

Chair, College or School Curriculum Committee

Dean of College or School

Chair, University Committee on Courses and Curricula

Chair, Graduate Council (if applicable)

Chair, Deans Council
MEMO

TO: University Courses & Curricula Committee

FROM: Donna Reese
Associate Dean for Academics & Administration

COPY: Jeremiah Davis

DATE November 11, 2008

RE: Addition of Engineering Technology Concentrations in Agriculture MS and Agricultural Science PhD programs

The Bagley College of Engineering supports the addition of the Engineering Technology concentration in the Master of Science in Agriculture and the Doctor of Philosophy in Agricultural Science. These degree programs do not duplicate programs already offered in the Bagley College of Engineering and are not expected to impact the enrollment in any of our degree programs. These two concentrations will provide pathways for students in the Agricultural Engineering Technology and Business program which do not exist with the current offerings.
NEW CONCENTRATION TITLE

Doctor of Philosophy in Agricultural Sciences, Concentration in Engineering Technology

RESPONSIBLE ACADEMIC UNIT

Agricultural & Biological Engineering

CATALOG DESCRIPTION

Existing Catalog Description

None within concentration

Proposed Catalog Description

Agricultural and Biological Engineering, College of Agriculture and Life Sciences
Dr. Melissa Mixon, Interim-Dean
Dr. William Batchelor, Department Head
Dr. Radhakrishnan Srinivasan, Graduate Coordinator
150 Agricultural & Biological Engineering
(662) 325-3282
contact: abe_head@abe.msstate.edu

Graduate study is offered in the Department of Agricultural and Biological Engineering leading to the degree of Master of Science in Agriculture with a concentration in Engineering Technology or a Doctor of Philosophy in Agricultural Sciences - Engineering Technology. A limited number of graduate research and teaching assistantships are available.

Admission Criteria—Prerequisites for admission into the graduate program include all the general requirements of the Office of Graduate Studies, completion of the GRE general test and the submission of scores, and identification of a departmental professor who is willing to serve as research director for the master's or Ph.D. project. International students must obtain a TOEFL score of 550 or higher. Exceptions to these requirements are considered on a case-by-case basis and require approval of the Department Chair.

Program of Study and Completion Requirements—The Master of Science in Agriculture with a concentration in Engineering Technology requires a minimum of 24 credit hours of course work beyond the baccalaureate degree, at least one-half of which must be from the ≥ 8000 level courses, and six or more credit hours of research/thesis. Required courses are ST 8114 and one credit hour of ABE 8911, ABE 8921, or ABE 8931. A thesis and an oral comprehensive examination in defense of the thesis are required. Doctoral students are required to complete a minimum of 60 credit hours of course work beyond the baccalaureate degree, at least one-half of which must be from 8000 level courses or above, including at least two credit hours of ABE 8911, ABE 8921, or ABE 8931. Twenty hours of research, a preliminary examination, a dissertation, and an oral examination in defense of the dissertation are required. Once the student’s research plan has been established, the student is required to present his/her research plan to the faculty in the form of a departmental seminar.

Program of Study: Non-Thesis Option—The Master of Science in Agriculture with a concentration in Engineering Technology (non-thesis) requires a minimum of 30 credit hours of course work, at least one-half of which must be from the 8000 level courses or above. Required courses are ST 8114 and one credit hour of ABE 8911, ABE 8921, or ABE 8931. The major professor and graduate committee will determine specific course requirements for the student's program. The student must submit a research paper.

Provisional Admission—If a student does not fully meet the admission requirements of the program, it may be possible for that student to be provisionally admitted. If provisionally admitted, the student must attain a 3.00 GPA on the first nine hours of graduate courses at Mississippi State University after admission to the program.
Transfer and unclassified graduate hours will not apply. If a 3.00 GPA is not attained, the student may be dismissed from the graduate program.

**Academic Performance**—Unsatisfactory performance in the graduate program in Agricultural and Biological Engineering is defined as any of the following: failure to maintain a 3.0 average GPA in attempted graduate courses after admission to the program, a grade of U, D, or F in any one course, more than two courses with a grade of C, failure of the research defense, unsatisfactory evaluation of a thesis, or failure of a required component of the program of study. Any one of these, or a combination of these, will constitute the basis for review for possible dismissal. The graduate coordinator will review the record, along with the student's graduate committee, and take a final course of action, which will be immediate dismissal or the establishment of a probationary period in which corrective action must take place. Appeal of dismissal can be made by submitting a written appeal statement to the department head. If the dismissal is upheld by the department head upon the student's appeal, the student can then submit a written appeal to the dean of the College of Agriculture and Life Sciences.

**Graduate Courses**—Course prerequisites are noted in parentheses.

**ABE 6163** Agricultural Machinery Management. 3 hours

**ABE 6263** Soil and Water Management (ABE 2873). 3 hours

**ABE 6383** Building Construction (EG 1143). 3 hours

**ABE 6453** Cotton Ginning Systems and Management. 3 hours

**ABE 6473** Electrical Application (ABE 1663). 3 hours

**ABE 6483** Introduction to Remote Sensing. 3 hours

**ABE 6990** Special Topics in Agricultural and Biological Engineering. 1-9 hours

**ABE 7000** Directed Individual Study. 1-6 hours

**ABE 8000** Research/Thesis. 1-6 hours

**ABE 8911** Agricultural and Biological Engineering Seminar. 1 hour

**ABE 8921** Agricultural and Biological Engineering Seminar. 1 hour

**ABE 8931** Agricultural and Biological Engineering Seminar. 1 hour

**ABE 8990** Special Topics in Agricultural and Biological Engineering. 1-9 hours
CALS CREATION OF CONCENTRATION PROPOSAL

Concentration Title

Doctor of Philosophy in Agricultural Sciences, Concentration in Engineering Technology

Effective Date

Spring 2009

Responsible Academic Unit

Agricultural & Biological Engineering

Contact Person

Jeremiah D. Davis, Assistant Professor, Agricultural & Biological Engineering

Justification

1. Program summary

Graduate study is offered in the Department of Agricultural and Biological Engineering leading to the degree of Doctor of Philosophy in Agricultural Sciences - Engineering Technology. A limited number of graduate research and teaching assistantships are available.

Program of Study and Completion Requirements: Doctoral students are required to complete a minimum of 60 credit hours of course work beyond the baccalaureate degree, at least one-half of which must be from 8000 level courses or above, including at least two credit hours of ABE 8911, ABE 8921, or ABE 8931. In addition, 20 or more hours of research, a preliminary examination, a dissertation, and an oral examination in defense of the dissertation are required. Once the student's research plan has been established, the student is required to present his/her research plan to the faculty in the form of a departmental seminar.

2. Mississippi's need for this program

Currently, the Department of Agricultural & Biological Engineering (ABE) has a Ph.D. in Engineering through the College of Engineering. Students in the Agricultural Engineering Technology & Business (AETB) B.S. program in ABE have a non-engineering based background through the College of Agriculture and Life Sciences. If these students want to further their education in Engineering Technology, ABE has no outlet to send these students. Several students within AETB have asked about starting a graduate program addressing Engineering Technology. The Faculty of Agricultural &
CURRICULUM OUTLINE

Existing Curriculum

None within concentration

Proposed Curriculum

The proposed curriculum for the Doctor of Philosophy in Agricultural Sciences, concentration in Engineering Technology are as follows:

- Minimum of 60 hours of coursework beyond the baccalaureate, at least one-half of coursework credit hours must be ≥ 8000 level courses.
  - Required courses:
    - Two credit hours in ABE 8911, ABE 8921 or ABE 8931.
- In addition, twenty or more hours of research
- Preliminary examination
- Completion of a dissertation
- Completion of an oral comprehensive examination in defense of the dissertation

JUSTIFICATION AND STUDENT LEARNING OUTCOMES

Currently, the Department of Agricultural & Biological Engineering (ABE) has a Ph.D. in Engineering through the College of Engineering. Students in the Agricultural Engineering Technology & Business (AETB) B.S. program in ABE have a non-engineering based background through the College of Agriculture and Life Sciences. If these students want to further their education in Engineering Technology, ABE has no outlet to send these students. Several students within AETB have asked about starting a graduate program addressing Engineering Technology. The Faculty of Agricultural & Biological Engineering is adding this concentration to meet the demands of students attempting to further their education.

For an AETB student to complete a Ph.D. in other fields such as Animal Science, Ag Information Systems and Agricultural Economics, the students are required to take several semesters of pre-requisites to meet the requirements of these graduate programs. Several AETB students are currently enrolled in these various graduate programs showing that they have the aptitude and drive to complete an advanced degree. However, the extra time and money to obtain these advanced degrees outside their area of concentration detracts many students interested in considering graduate school. The Faculty senses that ABE will be able to retain more students wanting to obtain an advanced degree in Engineering Technology that might otherwise skip a graduate program.

Learning Outcomes

- Students will be able to develop an idea, collect data to further develop the idea, and present the idea to faculty and peers in sensible manner.
  - Seminar performance
- Students will be able to formulate a problem, translate the problem into hypotheses and collect the necessary data to reach a conclusion (make a significant impact to the resolution of the problem).
  - Thesis/dissertation defense
  - comprehensive exam
  - preliminary exam
- Graduates will be able to disseminate their research to the appropriate audience.
- Graduates will be able to obtain and excel in an occupation related to their field.

SUPPORT

A letter of support from the ABE Faculty is attached.

PROPOSED 4-LETTER ABBREVIATION

There will be no change to the 4-letter abbreviation.

EFFECTIVE DATE

Spring 2009
In addition to the proposal, it was asked that the ABE Faculty answer the following questions concerning the new concentration.

1. Program summary

Graduate study is offered in the Department of Agricultural and Biological Engineering leading to the degree of Doctor of Philosophy in Agricultural Sciences with concentration in Engineering Technology.

Program of Study and Completion Requirements: Doctoral students are required to complete a minimum of 60 credit hours of course work beyond the baccalaureate degree, at least one-half of which must be from 8000 level courses or above, including at least two credit hours of ABE 8911, ABE 8921, or ABE 8931. Twenty hours of research, a preliminary examination, a dissertation, and an oral examination in defense of the dissertation are required. Once the student's research plan has been established, the student is required to present his/her research plan to the faculty in the form of a departmental seminar.

2. Mississippi's need for this program

Currently, the Department of Agricultural & Biological Engineering (ABE) has a Ph.D. in Engineering through the College of Engineering. Students in the Agricultural Engineering Technology & Business (AETB) B.S. program in ABE have a non-engineering based background through the College of Agriculture and Life Sciences. If these students want to further their education in Engineering Technology, ABE has no outlet to send these students. Several students within AETB have asked about starting a graduate program addressing Engineering Technology. The Faculty of Agricultural & Biological Engineering is adding this concentration to meet the demands of students attempting to further their education.

For an AETB student to complete a Ph.D. in other fields such as Animal Science, Ag Information Systems and Agricultural Economics, the students are required to take several semesters of pre-requisites to meet the requirements of these graduate programs. Several AETB students are currently enrolled in these various graduate programs showing that they have the aptitude and drive to complete an advanced degree. However, the extra time and money to obtain these advanced degrees outside their area of concentration detracts many students interested in considering graduate school. The Faculty senses that ABE will be able to retain more students wanting to obtain an advanced degree in Engineering Technology that might otherwise skip a graduate program.

3. Institutional impact including research efforts.

This new concentration has tremendous potential impact on MSU. The Ph.D. in Agriculture, with a concentration in Engineering Technology provides a greater level of training and maturity for students wanting to find advanced technology careers in Mississippi. With the recent movement of technology companies into Mississippi, the number of advanced technology job opportunities should increase. As we place students with advanced technology degrees out in industry, people across the state will notice AETB and subsequent
graduate degrees in AETB as viable options for their graduating children and students. With the increased opportunities associated with an AETB degree(s), we will be able to attract higher caliber students to our undergraduate program.

The proposed concentration is absolutely critical to the research efforts of ABE faculty conducting research in traditional agricultural and bio-energy fields. The type of students who choose AETB as a major have years of experience in the agricultural field. Given the proper technical training along with their extensive backgrounds, AETB students will help propel research efforts of ABE faculty. It is easier to identify quality students at MSU than trying to recruit traditional agricultural students from across the U.S.

4. **Total anticipated budget**

Funding for students within this concentration will be supported through grant research assistantships. Dual-listed courses within ABE are currently being taught. No additional funding is anticipated for the first five years for the projected student numbers.

5. **Use a chart to show anticipated enrollment for first five years.**

![Anticipated Enrollment Chart]

Anticipated Enrollment of the Ph.D. in Agricultural Sciences, Concentration in Engineering Technology

- Year 1: 1.0
- Year 2: 1.5
- Year 3: 2.0
- Year 4: 2.5
- Year 5: 2.5

**Anticipated Enrollment**

- **Year**
  - 1
  - 2
  - 3
  - 4
  - 5
October 18, 2008

University Committee on Courses & Curricula,

The Agricultural and Biological Engineering Faculty unanimously vote in favor of developing a new concentration in Engineering Technology under the College of Agriculture and Life Sciences’ umbrella Doctor of Philosophy in Agricultural Sciences degree.

Sincerely,

[Signature]

Jeremiah D. Davis, Assistant Professor
Agricultural & Biological Engineering
Mississippi State University
Mississippi State, MS 39762
(662) 325-7347
jdavis@abe.msstate.edu
NOTE: This form is a cover sheet that must accompany the degree program change proposal. The actual proposal should be prepared in accordance with format requirements provided in the Guide and Format for Curriculum Proposals published by the UCCC. Both cover sheet and proposal should be submitted, along with all required copies, to UCCC, Butler-Williams Building, Suite B, 100 Walker Road, (Mail Stop 9699).

College or School: Engineering
Contact Person: Edward B. Allen
Nature of Change: Modification

Department: Computer Science and Engineering
Phone: x57449 E-mail: edward.allen@msstate.edu
Date Initiated: 8/22/08 Effective Date: Spring 2009

New or Current Degree Program Name:
Master of Science in Computer Science

Summary of Proposed Changes:

No change in degree requirements is proposed.

A non-degree program is proposed to govern the combination of bachelor-level and masters-level studies, so that a typical student could complete a Bachelor of Science degree in Computer Science or in Software Engineering and a Master of Science degree in Computer Science in four academic years plus one calendar year. This will be accomplished by counting a maximum of nine credits of graduate courses toward both degrees.

Current Graduate School policy does not allow a graduate course to count toward both a bachelor degree and a master degree. An exception to this policy is proposed, with attendant programmatic safeguards against abuse.

See also the companion proposed changes to the Bachelor of Science Degree in Computer Science and the Bachelor of Science Degree in Software Engineering.

Approved:

Date:

Chair, College of School Curriculum Committee
Dean of College or School
Chair, University Committee on Courses and Curricula
Chair, Graduate Council (if applicable)
Chair, Deans Council
Proposal for Modification of the M.S. Program in Computer Science

1. CATALOG DESCRIPTION

Relevant Section of Current Catalog Description

8. Undergraduate Enrollment in Graduate Courses
An undergraduate student at Mississippi State University who lacks 12 or fewer credit hours to complete the undergraduate degree requirements may seek approval to enroll in courses for graduate credit in the semester or term he/she is graduating. The undergraduate student should meet the grade point average requirement for regular admission to the particular graduate program. Prior to enrollment, the department head of the undergraduate student’s major must seek approval of the college dean by written request endorsed by the instructor or appropriate administrator of the unit in which graduate courses are to be taken. An undergraduate student may take up to 9 graduate credit hours. The combination of undergraduate and graduate credit hours may not exceed 13 hours. Any exception to the stated criteria must be approved by the Associate Provost (per Graduate Council, May 2004).

(Graduate Bulletin 2007-2008, p. 44)

Relevant Section of Proposed Catalog Description

No change in degree requirements is proposed.

No change is proposed for the current University-level policy stated above. However, the following is proposed as an exception.

Add the following paragraph to the section on the Master of Science degree in Computer Science (Graduate Bulletin 2007-2008, pp. 125-126).

Master of Science Degree

5-year BS/MS Program
The 5-year B.S./M.S. program enables a student to complete both a Bachelor degree in Computer Science or Software Engineering and a Master’s degree in Computer Science in approximately five years. The program has the following features.

- A student must apply for admission to the program, no sooner than the end of the sophomore year (60 hours or more of graded courses). The criteria for admission assess whether the applicant possesses those qualifications and interests that indicate to the department’s Graduate Studies Committee that the applicant will be successful in the MSU M.S. in Computer Science program. The applicant must have an overall GPA of 3.5.

- The admission application package to the program must have all of the elements of an application package for the M.S. degree, including GRE scores, and application fee.

- A student must have senior standing to enter the program. A student is classified as an undergraduate until all the requirements for the undergraduate degree are fulfilled, at which point the student is then classified as a graduate student.

- A maximum of nine hours of graduate courses taken after entering the program and prior to completing the bachelor degree can count toward both the bachelor degree and the Program of Study for the Master of Science in Computer Science degree. In order to count toward the Master degree, such courses must conform to other requirements for the M.S. degree. The program will follow procedures established by the Registrar for dual counting.

- During the senior year, if a student in the program enrolls in any graduate courses during a
given term, then the maximum load of combined graduate and undergraduate courses is 16 credits during that Fall or Spring semester, or 6 credits during that Summer (all summer terms combined).

- During the senior year, approval to enroll in graduate courses will be granted by the department’s Graduate Coordinator.
- During the senior year, graduate courses at the 6000-level will count toward the Bachelor of Science degree similarly to the corresponding 4000-level courses.
- During the senior year, graduate courses at the 7000-level or above will count toward the Bachelor of Science degree as technical electives.

- Upon earning the Bachelor degree and making satisfactory progress, the student will be admitted to the Master of Science in Computer Science program. The department’s Graduate Coordinator will initiate the graduate admission process by the end of the first semester of the senior year.
- After earning the Bachelor degree, the student will complete the M.S. degree requirements in the normal manner.
- An undergraduate student may opt out of the program at any time and complete only the undergraduate portion of the program. No additional dual counting will occur after opting out.

Detailed List of Changes

No change in degree requirements is proposed.

Overall, a non-degree program is proposed to govern the combination of bachelor-level and masters-level studies, so that a typical student could complete a Bachelor of Science degree in Computer Science or in Software Engineering and a Master of Science degree in Computer Science in four academic years plus one calendar year. This will be accomplished by counting a maximum of three graduate courses toward both degrees.

1. An admission process is defined.
2. A student can enter the program when senior standing is achieved.
3. A maximum of nine hours of graduate courses can count toward both degrees.
4. Course loads are limited in those terms of the senior year when the student enrolls in graduate courses.
5. Graduate courses fit into the bachelor curriculum.
6. The student will complete bachelor degree requirements in the normal manner.
7. After earning the bachelor degree, the student will complete the M.S. degree requirements in the normal manner.

2. CURRICULUM OUTLINE

No change.

3. JUSTIFICATION

After extensive discussion, the faculty of the Department of Computer Science and Engineering voted in support of the proposed 5-year B.S./M.S. program in Computer Science on 4/28/08.
Benefits

The goal of the proposed program is to make graduate study at the master’s level study in computer science more attractive to honors-quality undergraduates at Mississippi State University. This program would accelerate the Master’s degree by one semester (9 credits).

Publicity about this program may stimulate more juniors majoring in Computer Science or Software Engineering to think about attending graduate school earlier than they would have otherwise.

The availability of this program may attract more honors-quality freshmen and sophomores into the Computer Science major and the Software Engineering major.

Detailed Rationale

1. **An admission process is defined.** An admissions process is defined that is similar to the admission process for an M.S. degree. The Graduate Studies Committee of the department considers the qualifications of each graduate studies applicant as a whole, and therefore, prescriptive GPA and test scores for admission are not desirable. This process will assure that students in the program have the qualifications necessary to be successful in graduate study.

2. **A student can enter the program when senior standing is achieved.** “Senior year” is a synonym for “senior standing” irrespective of the calendar duration.

3. **A maximum of nine hours of graduate courses can count toward both degrees.** The maximum of nine hours of graduate courses counting toward both degrees is consistent with the policy for double master’s degrees (*Graduate Bulletin 2007-2008*, p. 57).

   Transfer credit from one master’s degree at MSU toward a second MSU master’s degree is also limited to a maximum of nine hours.

   Some computer science courses at the 6000-level have labs, and thus, are four credits. Such courses are acceptable.

4. **Course loads are limited in those terms of the senior year when the student enrolls in graduate courses.** Current rules limit the course load of seniors who take graduate courses. The proposal balances timely completion of the bachelor degree with the extra work that graduate courses entail by limiting course loads.

5. **Graduate courses fit into the bachelor curriculum.** Split-level courses (6000-level) fit naturally into bachelor degree requirements, because the corresponding 4000-level courses are already specified. Advanced courses (7000-level and above) are elective topics.

6. **The student will complete bachelor degree requirements in the normal manner.** No changes in bachelor degree requirements are proposed.

7. **After earning the bachelor degree, the student will complete the M.S. degree requirements in the normal manner.** No changes in master’s degree requirements are proposed.
Comparison to Other Universities

A survey of Web sites of a number of peer and peer-plus universities was conducted, including all universities in the SEC, all land-grant universities in the Southeast that offer a Ph.D. program in computer science, and selected other universities. We found the following which allow coursework to be counted toward both bachelor and master’s degrees in Computer Science.

- **University of Florida (Computer Science).** “Combined Bachelor’s/Master’s Degree Program” allows students to double-count graduate courses. Students who qualify can enroll in 12 credits of graduate courses during the junior and senior years.

- **University of South Carolina (Computer Science and Engineering).** “Bachelor’s/Master’s Accelerated Programs” allows up to nine credit hours at graduate level to both B.S. and M.S. degrees. Entrance requires 3.4 GPA.

- **North Carolina State University (Computer Science).** “Accelerated Bachelor’s/Master’s (ABM) Degree Program” allows juniors and seniors to count up to four graduate computer science courses toward both degrees.

- **Southern Methodist University (Computer Science and Engineering).** “4+1 Program” allows computer science and computer engineering student to complete both a B.S. and M.S. degree in five years. Up to nine credits of graduate work can be applied to both degrees.

- **Fordham University (Computer Science).** “Accelerated M.S. Program in Computer Science” allows students with a bachelor’s degree in a non-computer science major to complete an M.S. degree in computer science in one year while enrolled in the bachelor’s degree program.
NOTE: This form is a cover sheet that must accompany the degree program change proposal. The actual proposal should be prepared in accordance with format requirements provided in the Guide and Format for Curriculum Proposals published by the UCCC. Both cover sheet and proposal should be submitted, along with all required copies, to UCCC, Butler-Williams Building, Suite B, 100 Walker Road, (Mail Stop 9699).

College or School: Arts & Sciences  
Department: Arts & Sciences  
Contact Person: Gary Myers  
Phone: 5-2646  
E-mail: gmyers@deanas.msstate.edu  
Nature of Change: Add  
Date Initiated: 6/19/07  
Effective Date: Fall 2008

New or Current Degree Program Name:  
Master of Arts in Interdisciplinary Sciences

Summary of Proposed Changes:  
Establish a distance education Master of Arts in Interdisciplinary Sciences degree program.

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

Date:  
4/28/07

6/28/07

6/28/07

1/7/09


Degree Proposal Approval: Master of Arts in Interdisciplinary Sciences

This proposal seeks formal authorization to create an online distance Master of Arts in Interdisciplinary Sciences (MAIS) degree. This program will target practicing K-12 teachers from throughout the nation who need science content and/or endorsement in one or more specific scientific disciplines (Biological Sciences, Chemistry, Geosciences, or Mathematics & Statistics).

Role and Mission

1. Does this program further the mission of your institution?
   Yes

2. How does the proposed program help meet the priorities/goals of your strategic plan?
   The program helps in meeting the priorities/goals of the University by (a) growing our graduate student base on a national scale in the fields of Biological Sciences, Chemistry, Geosciences, and Mathematics & Statistics, (b) addressing the national concern regarding the shortage of well-qualified and prepared teachers in our K-12 school systems, (c) providing students who are unable to obtain an education through traditional means access to a rigorous educational experience online via distance learning, and (d) enhancing the alumni base of the College of Arts & Sciences and of the institution on a national scale.

3. Will this proposal require an addition or change to your institution's strategic plan?
   No

Administration

1. Describe how the program will be administered.
   The program will be administered by the Dean of the College of Arts & Sciences in cooperation with Department Heads from Biological Sciences, Chemistry, Geosciences, and Mathematics & Statistics at Mississippi State University.

2. Indicate name and title of person(s) who will be responsible for curriculum development and program supervision.
   Dr. Gary Myers, Dean of the College of Arts & Sciences, is responsible for program supervision and review. Curriculum development is the responsibility of the department heads, Dr. Nancy Reichert, Department of Biological Sciences; Dr. Edwin Lewis, Department of Chemistry; Dr. Darrel Schmitz, Department of Geosciences; and Dr. Mohsen Razzaghi, Department of Mathematics & Statistics.

3. If the program will be administered by more than one administrative unit, what factors will make this desirable?
The program will be administered solely by the College of Arts & Sciences.

4. If non-academic administrative units (e.g., "institutes" or "centers") will be involved in administering the program, describe the relationship.

Not applicable.

Educational Objectives

1. Describe the educational objectives of the program.

Graduates of this program will have:
   • a detailed understanding of one of the four disciplines offered and a general understanding of all four disciplines, or
   • a detailed understanding of two of the four disciplines offered; and,
   • a concept of the interrelationships between the four disciplines

The primary objectives of the program are to:
   • provide K-12 teachers from across the state and nation the opportunity to pursue a graduate, interdisciplinary degree experience that enhances their knowledge base of multiple science disciplines
   • improve the quality of the educational experience and college preparation for K-12 students
   • allow the students to obtain this education in a flexible, web-based format.

2. If the program design includes multiple curricula (e.g., concentrations, emphases, options, specializations, tracks, etc.), describe the educational objectives of each.

Not applicable. While the students must declare an emphasis area (one of the four sciences), the educational objectives are the same for each.

Admission Requirements

1. Provide admission requirements for the program. If there are different categories of admission (e.g., unconditional or probationary), describe each.

Classified Admission Requirements

Applicants for the MAIS Program should hold a bachelor's degree from a fully recognized four-year institution of higher learning. Admission is based primarily on the student's grade point average over the last 60 semester hours of baccalaureate work, letters of reference, and work experience. First priority will be given to people actively engaged in K-12 teaching. The statement of purpose, professional goals and interests will be used to screen applicants to identify those who could benefit from this degree program and identify those who may have misunderstood the stated goals of this program.

The criterion for regular admission to the program is a minimum 2.75 Grade Point Average (GPA) on a 4-point scale in their last 60 hours of the undergraduate degree. The
Graduate Coordinators from the four departments will determine the potential success of each admissions candidate.

**Unclassified Admission Requirements**

Unclassified admission is available for those desiring graduate-level study for purposes other than an advanced degree or those who have not completed their official admission packet by the deadline. A student may begin taking classes as an unclassified student and may take up to nine graduate hours, which may be transferred into the program.

2. *If transfer students will be admitted to the program, list articulation agreements completed, negotiated, or planned.*

Transfer credit will not be accepted into this program.

**Professional Accreditation**

1. *Do all programs offered by the university within this discipline have professional accreditation (if available)?*

Programs in the College of Arts & Sciences are accredited by the Southern Association of Colleges and Schools (SACS).

2. *Have all programs offered by the university within this discipline met the minimum standards of productivity?*

   Yes

3. *Will professional accreditation be sought for this program (if available)? Where applicable, identify accrediting agencies and show how the program meets the criteria of these agencies. Append standards and criteria to the proposal.*

   No, please see question #1 above.

4. *Is it likely that a SACS visit for substantive change will be necessary?*

   No

**Credit Hours and Curriculum**

1. *How many credit hours will be required for graduation? If this is a request for an undergraduate program requiring more than 124 credit hours, please justify.*

   Thirty-six credit hours will be required for this program.

2. *Will the curriculum for this program be consistent with the curricula of similar programs in this discipline?*

   The curriculum will be more flexible than similar programs since the students can choose one of the four disciplines as the emphasis area and then choose from the other three disciplines to complete their program of study.
3. Will the curriculum for this program meet any licensing or certification needs?

The curriculum will satisfy the State Department of Education requirement in most states (including Mississippi) for an endorsement in a specific science area (the area of emphasis as chosen by the student) and will assist and/or allow the students to meet the No Child Left Behind Act stipulations.

4. List the entire course of study required and recommended to complete the program. Clearly differentiate which courses presently exist and which will be developed. Append course descriptions for all courses (existing and new courses). When describing required or elective courses, list all course prerequisites.

Program Requirements

- 36 credit hours are required
- Transfer credit hours from another university will not be accepted toward fulfilling requirements for this program
- A minimum of 15 credit hours must be at the 8000 level
- Each student must designate one of the four sciences as his/her primary area. The student must then complete 21 hours in this field (with advisor approval), including the Research Methods and Capstone courses.
- The student can then elect to take whatever courses he/she chooses (with advisor approval) to complete the degree.
- The time limit for fulfilling the requirements for the program is 6 years.
- A written comprehensive examination is required of all degree candidates and will be administered at the beginning of the final term. The candidate's graduate committee will administer the exam based on his/her coursework. The candidate must be enrolled at MSU during the semester the examination is administered, must have a GPA of 3.0 on all coursework after being admitted to the program (i.e., program and non-program courses), and must be within the last 6 hours of his/her program of study. All candidates will be eligible to take the examination twice only after a minimum of 4 months time has elapsed from when the first examination was taken. Two failures of the examination result in the student being dropped as a master degree candidate.

Coursework

As stated above, each student must choose one area of emphasis and complete 21 hours in this area. Therefore, each of the four science departments will offer a minimum of 7 courses with each course consisting of 3 credit hours. All course descriptions are attached.

Department of Biological Sciences

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>New course</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIO 6013</td>
<td>Genetics &amp; Molecular Biology</td>
<td></td>
</tr>
<tr>
<td>BIO 6023</td>
<td>Principles of Evolutionary Biology</td>
<td>New course</td>
</tr>
<tr>
<td>BIO 8023</td>
<td>Modern Microbiology</td>
<td></td>
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</tbody>
</table>
BIO 8033    Advanced Cell Biology
            New course
BIO 8043    Ecology & the Environment
            New course
BIO 8073    Research Methods in Biological Sciences for Interdisciplinary Sciences
            New course
BIO 8083    Capstone in Interdisciplinary Sciences with an Emphasis on Biological Sciences
            New course

Department of Chemistry
CH 6263    Industrial and Consumer Chemistry
            New course
CH 6363    Chemistry of the Environment
            New course
CH 8073    Research Methods in Chemistry for Interdisciplinary Sciences
            New course
CH 8083    Capstone in Interdisciplinary Sciences with an Emphasis on Chemistry
            New course
CH 8363    Analytical Methods in Forensics
            New course
CH 8463    Chemistry of Energy
            New course
CH 8473    Chemical Structure and Bonding
            New course
CH 8563    Organic Molecules and Polymeric Materials
            New course

Department of Geosciences
GG 8073    Research Methods in Geosciences for Interdisciplinary Sciences
            New course
GG 8083    Capstone in Interdisciplinary Sciences with an Emphasis on Geosciences
            New course
GG 8113    Geology I: Processes and Products
            Existing course
GG 8123    Geology II: Earth, Time and Life
            Existing course
GG 8203    Ocean Science
            Existing course
GG 8233    Environmental Geosciences
            Existing course
GG 8613    Hydrology
            Existing course
GR 6603    Climatology
            Existing course
GR 8113    Meteorology I: Observations
            Existing course
GR 8123  Meteorology II: Forecasting and Storms
Existing course

Department of Mathematics & Statistics
MA 6013∗  Applied Mathematics for Interdisciplinary Sciences
New course
∗Prerequisite course offered in the summer and fall semesters.
Cannot be used as part of the 36 hour program of study.
MA 6023  Theory of Equations for Interdisciplinary Sciences
New course
MA 6033  Studies in Applied Probability and Statistics
New course
MA 8033  Studies in Discrete Mathematics
New course
MA 8053  Applied Linear Algebra for Interdisciplinary Sciences
New course
MA 8063  Differential Equations with Mathematical Modeling
New course
MA 8073  Research Methods in Mathematics and Statistics for
Interdisciplinary Sciences
New course
MA 8083  Capstone in Interdisciplinary Sciences with an Emphasis on
Mathematics and Statistics
New course

Electives
PH 6033  Demonstrations and Concepts for Physics Teachers I
Existing course
PH 6043  Demonstrations and Concepts for Physics Teachers II
Existing course
PH 6053  Physical Science for Teachers
Existing course
PH 8003  Topics for Physics Teachers
Existing course

5. **Identify and describe special requirements for the program, e.g., clinical, field experience, community service, internships, practicum, a thesis, etc. When internships or field experiences are required as part of the program, provide information documenting internship availability as well as how student will be assigned and supervised.**

This is a non-thesis M.S. program. All but one course from each department will be delivered online. The face-to-face course, Capstone in Interdisciplinary Sciences with an Emphasis on ___ (specific discipline), is the capstone course for the degree. Each student will be required to complete this course during their last semester of study (summer, year 2). Faculty from the student’s primary department (Biological Sciences, Chemistry, Geosciences, or Mathematics & Statistics) will meet face-to-face with students in an intensive 10-day period in order to participate in planned, hands-on and field-based activities. This capstone course could be taught at the MSU campus, at a regional or national laboratory, or at a remote location for field work.
6. Indicate whether courses in a proposed masters program are cross-listed as undergraduate courses and, if so, what safeguards are employed to ensure that courses taken as undergraduates are not repeated or that requirements are significantly different for graduate students and undergraduates enrolled in the same course.

Some of the courses listed are 4000/6000 and are utilized in other programs of study. This particular degree program is only available to graduate level, distance students. On-campus students (graduate and undergraduate) and undergraduate students (main campus and distance) are not allowed to enroll in this program of study.

7. Provide documentation that all courses in the proposed curriculum have met all institutional requirements for approval

The College of Arts & Sciences Committee on Courses and Curriculum, the Dean of the College of Arts & Sciences, the University Committee on Courses and Curriculum, the Graduate Council, and the Provost have all approved this proposal. Once the degree is approved by IHL, any new course proposals will be reviewed and approved by these same entities.

Supporting Fields

1. Identify and describe the relationship of existing programs and supporting fields that will complement the proposed program.

Not applicable

Faculty

1. For each faculty member, give the following data:
   a. Name, rank, academic discipline, institutions attended, degrees earned;
   b. Current workload for typical semester, including specific courses usually taught; explain how workload will be impacted with the addition of proposed program;
   c. Scholarship and publication record for past five years;
   d. Professional activity; and
   e. Expected responsibilities in this program.

All faculty members in the Departments of Biological Sciences, Chemistry, Geosciences, and Mathematics & Statistics who have graduate faculty status potentially could teach a course in the Master of Arts in Interdisciplinary Sciences program. While the four departments already have heavy teaching loads for on-campus students, this program is being structured to prevent an additional burden on the faculty. The maximum number of online courses taught in this proposed degree program in any given semester would only be four (two for first year students and two for second year students). The new courses would contain much scientific content currently being delivered in a variety of existing courses. The content would be amended and tailored to fit this degree program, then “packaged” for delivery online. The courses themselves will be developed in the summer months which will not affect the faculty workload or normal course offerings within the department. The courses will then be offered during the academic year by a faculty member working in conjunction with an instructor, lecturer or graduate assistant who will be responsible for facilitating the course. The faculty have committed to expend the additional energy and time it will take to run these courses because we believe the
benefits of offering this Master of Arts in Interdisciplinary Sciences degree program outweigh potential detriments.

The following comprehensive list of faculty members may participate in this program. Curriculum vitae are attached.

<table>
<thead>
<tr>
<th>Acad. Disc.</th>
<th>Name</th>
<th>Rank</th>
<th>Institutions Attended</th>
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</thead>
<tbody>
<tr>
<td>BIO</td>
<td>Reichert, Nancy</td>
<td>Prof, Interim Head</td>
<td>New Mexico State University</td>
<td>Ph.D.</td>
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<tr>
<td>BIO</td>
<td>Brooks, Christopher</td>
<td>Assistant Professor</td>
<td>University of North Carolina</td>
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<td>Buddington, Randal</td>
<td>Professor</td>
<td>University of California-Davis</td>
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<td>Chevalier, David</td>
<td>Assistant Professor</td>
<td>University of Zurich (Switzerland)</td>
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<td>Associate Professor</td>
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<td>Mead, Keith</td>
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<td>Armbrust, Kevin</td>
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<td>Beard, Debbie</td>
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<td>Professor</td>
<td>Indiana University</td>
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</table>

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<td>Razzaghi, Mohsen</td>
<td>Prof, Interim Head</td>
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<td>MA</td>
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<td>Ho Chi Minh City (Vietnam)</td>
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</table>
2. *If it will be necessary to add faculty in order to begin the program, give the desired qualifications of the persons to be added, with a timetable for adding new faculty and plan for funding new positions.*

No new faculty will be required to begin this program.

**State Needs**

1. *Will this program meet local, state, regional, and national educational and cultural needs? Please describe.*

In the global context of education, it is imperative that Mississippi State University reach across traditional geographic boundaries and create a graduate degree program that will attract a local, state and national student audience. The online delivery of this program has the ability to help promote science education of K-12 teachers across Mississippi, the region, and the nation that do not have access to traditional degree granting programs at the graduate level. In addition, this is a highly innovative program in terms of being interdisciplinary between 5 science departments, in terms of being designed for K-12 teachers, and in terms of being offered online. Teachers could also enroll in individual courses to count toward continuing education units (CEUs) needed to retain certification.

According to the Mississippi Department of Education, there are 10,591 K-12 science teachers in the state. Among this number, only 3,210 (30%) have Masters degrees. At the primary level, there are 9,459 science teachers in the state and 2,789 (29%) have Masters degrees. While there is no data to support this claim, the majority of the Masters degrees are probably in education, not in science. Therefore, the pool of existing teachers in Mississippi that could benefit from this proposed degree program is enormous, plus this program could serve new teachers that enter school systems state-wide.

2. *Indicate the student demand for the program. What evidence exists of this demand?*

The demand for qualified science teachers across the state and nation has increased dramatically over the past 5 years due to the new “No Child Left Behind” Act initiated by President George W. Bush in January 2002. In working to increase the ranks and qualifications of teachers of math and science, the No Child Left Behind Act requires states to fill the nation’s classrooms with teachers who are knowledgeable and experienced in these subject areas. Numerous practicing teachers from across the nation are being forced to take additional college courses in the subjects they teach in order to be qualified teachers. This program will be one of the few in the nation that will enable K-12 teachers to obtain the endorsements needed without having to leave their jobs and return to the college campus.
Enrollment in this program should be similar, if not greater, than that in the Master of Science in Geoscience degree which is also a distance program for K-12 teachers. That program typically admits 150 new students each year.

3. **Give any additional reasons that make the program desirable (for example, exceptional qualifications of the faculty, special facilities, etc.). Include reports of advisory committees and consultants, if available. For doctoral programs, the institution should involve at least three authorities in the field (outside of the institution) as consultants, and should include their reports as a part of the proposal.**

This program will be highly desirable due to:

- the needs of the K-12 teachers for these content courses
- the interdisciplinary nature of the program that allows flexibility in meeting the academic needs of a diverse, national student population in that programs of study will include a variety of courses from four academic departments
- the online method of program delivery will allow teachers the ability to continue to work full-time, share and discuss innovative teaching techniques with teachers from across the nation, and obtain a graduate degree without the limitations of time or location.

4. **Will this program be unnecessarily duplicative of other programs within the System? List all public and private institutions in the state offering similar programs. Also, for doctoral programs, list at least five institutions in other southeastern states that are offering similar programs. If no such programs exist, so indicate.**

This program will be unique in the state of Mississippi.

5. **Will this program advance student diversity within the discipline?**

By allowing students who are educators the opportunity to take this program via online delivery, teachers from across the nation will be able to advance their careers and their teaching ability/style without having to disrupt their career paths; therefore, the potential graduate student population for this program will be highly diverse in terms of gender, race, age, and geographic location.

6. **Will this program promote economic development within the State?**

This program will support economic development in that the continued education of the teachers in the state will increase the educational advantages of the students being taught, and the school districts that employ these individuals. With a more qualified and well-rounded teaching force comes an increased quality educational experience and the increased potential economic impact from new business and industry in the State.

**Program Potential**

1. **Estimate the cumulative headcount and full-time equivalent (FTE) enrollment for each of the first six years (explain assumptions used in making these estimates).**
The predicted enrollment in the proposed Master of Arts in Interdisciplinary Sciences degree program starting in FY09:

<table>
<thead>
<tr>
<th>Year of Program</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Yearly Total</th>
<th>Cumulative Total</th>
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<tr>
<td>FY14</td>
<td>249</td>
<td>186</td>
<td>435</td>
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Ultimate enrollment in this proposed degree program should be greater than that for the Master of Science in Geosciences degree program which is also a distance program for K-12 teachers since this program will cover four disciplines. That program typically admits 150 new students each year. Based on their information, an estimate of 100 initial students is conservative, and a projected yearly growth rate of 20% (annual growth rate for online education) is feasible.

This will be a two year program of study to complete the degree. Distance students typically take 4-6 credit hours per semester, not the fulltime graduate 9-12 hours, and this program would encourage students to take 6 hours per semester (fall, spring and summer). The FTE formula for graduate students considers full time as 12 hours. We can predict FTE growth as follows:

- Year One: 50
- Year Two: 105
- Year Three: 126
- Year Four: 151
- Year Five: 181
- Year Six: 218

2. Estimate the potential placement of graduates in Mississippi, the Southeast, and the United States.

Since this program is a distance program for practicing K-12 teachers, virtually all the students will be in the workplace when they start the program.

3. Estimate the potential salaries of graduates in Mississippi, the Southeast, and the United States.

The average teacher salary for the state of Mississippi is $35,135.
The average teacher salary for the Southeast is $39,183.
The average teacher salary for the nation is $45,771.

Resources
1. Describe library holdings relevant to the proposed program, noting strengths and weaknesses. If there are guidelines for the discipline, do current holdings meet or exceed standards? Describe planned actions that will maintain strengths and/or remedy weaknesses.

Any necessary library resources are currently available online. The courses to be offered are standard science courses, but geared towards teachers, so the library holdings are adequate for the disciplines.

2. Describe cooperative library arrangements that will be available to students in this program.

Not applicable

3. Provide estimates of any new costs to the institution related to the proposed program, including cost per student, and provide information regarding sources of the funding that will defray those costs. Itemize expenditures projected during each of the first six years.

This distance education program will not receive a fiscal year allocation from the College of Arts & Sciences or from MSU for the academic year operating budget. The program must generate revenue to cover the expenses necessary to administer a distance program. Tuition revenue is distributed using the AOCE model, 20% gross tuition revenue to the General Fund, 4% to Academic Affairs, and 28% to AOCE. Expenses (marketing, recruiting, travel, instructors) are paid out of the remaining 48%; the net is distributed to the College of Arts & Sciences. The College will then provide funds to each department based in part on the percentage of student credit hours generated. The revenue from distance fees is split between the General Fund (20%) and the participating departments (80% - based in part on the percentage of student credit hours generated).

Distance revenues must cover all expenses of the program including any faculty salaries to develop and teach the courses, technology upgrades, marketing, travel, supplies and training.

Any enrolled student in the program will pay a distance fee of $25 per credit hour in addition to the normal, in-state MSU tuition rate. Distance fees are subject to change with the appropriate university-level approval if deemed necessary. Students will be encouraged to enroll in two courses per semester, three semesters per year. This will translate into an annual cost to the student of $5,004. The capstone course will have an additional charge depending on the location and materials needed. The full degree would cost a student approximately $11,000. Textbooks, required peripherals, software and materials fees are not included. Many students enrolled in the program will receive reimbursement of program cost from their employers due to the increased value of those individuals completing program requirements.

Students in this two-year program of study will be encouraged to take 6 credit hours per semester (fall, spring and summer). The anticipated budget for the next six fiscal years is presented below.

FY08 – preparation of program and courses
Expenses:
- Faculty salaries for the development of courses: $100,000
  (20 courses at an average of $5,000 each)
- Materials for course development: $20,000
  (20 courses at an average of $1,000 each)
- Production of courses: $40,000
  (20 courses at an average of $2,000 each)
- Marketing of program: $5,000
- Technology needs: $10,000

Total FY08 Expenditures $175,000

Revenue:
- All expenditures to be paid for by AOCE: $175,000

FY 09 – preparation and program onset: year 1 courses only

Expenses:
- Faculty salaries for the development of courses: $75,000
  (15 courses at an average of $5,000 each)
- Materials for course development: $15,000
  (15 courses at an average of $1,000 each)
- Production of courses: $30,000
  (15 courses at an average of $2,000 each)
- Salary of faculty teaching courses: $100,000
  (20 courses at an average of $5,000 each)
- Marketing of program: $10,000
- Technology needs: $10,000

Total FY09 Expenditures $240,000

Revenue:
- Tuition at 48% to Dean / Department: $219,000
  (Year 1 students: 20 courses, 3 credit hours each, 30 students per course, $253 per SCH)
- Difference between revenue and expenses will be covered by AOCE $21,000

FY10 – program continuation: year 1 and 2 courses

Expenses:
- Salary of faculty teaching courses: $200,000
  (40 courses at an average of $5,000 each)
- Marketing of program: $10,000
- Technology needs: $8,000

Total FY10 Expenditures $218,000
Revenue:
- Tuition at 48% to Dean / Department: $459,000
  (Year 1 students: 20 courses, 3 credit hours each, 36 students per course, $253 per SCH;
  Year 2 students: 20 courses, 3 credit hours each, 27 students per course, $253 per SCH)

FY11 – program continuation: year 1 and 2 courses

Expenses:
- Salary of faculty teaching courses: $200,000
  (40 courses at an average of $5,000 each)
- Marketing of program: $10,000
- Technology needs: $8,000

Total FY11 Expenditures $218,000

Revenue:
- Tuition at 48% to Dean / Department: $546,000
  (Year 1 students: 20 courses, 3 credit hours each, 43 students per course, $253 per SCH;
  Year 2 students: 20 courses, 3 credit hours each, 32 students per course, $253 per SCH)

FY12 – program continuation: year 1 and 2 courses

Expenses:
- Salary of faculty teaching courses: $200,000
  (40 courses at an average of $5,000 each)
- Marketing of program: $10,000
- Technology needs: $8,000

Total FY12 Expenditures $218,000

Revenue:
- Tuition at 48% to Dean / Department: $663,000
  (Year 1 students: 20 courses, 3 credit hours each, 52 students per course, $253 per SCH;
  Year 2 students: 20 courses, 3 credit hours each, 39 students per course, $253 per SCH)

FY13 – program continuation: year 1 and 2 courses

Expenses:
- Salary of faculty teaching courses: $200,000
  (40 courses at an average of $5,000 each)
- Marketing of program: $10,000
- Technology needs: $8,000

Total FY13 Expenditures $218,000

Revenue:
- Tuition at 48% to Dean / Department: $802,000
  (Year 1 students: 20 courses, 3 credit hours each, 62 students per course, $253 per SCH; Year 2 students: 20 courses, 3 credit hours each, 47 students per course, $253 per SCH)

FY14 – program continuation: year 1 and 2 courses

Expenses:
- Salary of faculty teaching courses: $200,000
  (40 courses at an average of $5,000 each)
- Marketing of program: $10,000
- Technology needs: $8,000

Total FY14 Expenditures $218,000

Revenue:
- Tuition at 48% to Dean / Department: $954,000
  (Year 1 students: 20 courses, 3 credit hours each, 75 students per course, $253 per SCH; Year 2 students: 20 courses, 3 credit hours each, 56 students per course, $253 per SCH)

At predicted levels of enrollment and faculty/staff, no additional costs are needed to maintain the distance program. As stated above, the Division of Academic Outreach & Continuing Education (AOCE) will provide the funding to initiate the program. After the 2nd year of the program, there should be enough tuition revenue generated to offset all costs.

4. Describe the availability and adequacy of existing facilities that will be used for the proposed program and planned alteration or renovation of existing facilities needed for the program.

No additional facilities will be needed for this program.

5. Describe any external funding that will be garnered as a result of the program.

No additional external funding is anticipated from this program.

Internal Assessment

1. Describe procedures for evaluation of the program and its effectiveness in the first six years of the program, including admission and retention rates, program outcome assessments, placement of graduates, changes in job market need/demand, ex-student/graduate surveys, or other procedures. How will assessment be completed?
An assessment of the program will be initiated once program approval is granted. Planned types of assessments include:

- Admission rates will be assessed the first six consecutive semesters (fall, spring, summer) to determine program growth potential and for budgeting revenue in order to meet student enrollment demands. Additional admission assessments will be conducted each fall semester over the next four years.

- All degree seeking distance education students will participate in an online survey evaluation at the end of each semester in order to assess the quality of courses and to provide suggested program/course improvements for the future.

- An assessment of teacher placement and promotion due to program completion will be compiled and reviewed on an annual basis to determine program effectiveness and student success rates.

- Program retention will be monitored by Graduate Coordinators within each department or within the College of Arts & Sciences, and students who are not making progress towards their degrees will be contacted to determine reasons for the lack of progress.
Catalog Descriptions for the Master of Arts in Interdisciplinary Sciences Degree

The Master of Arts in Interdisciplinary Sciences is a 36-semester hour, web-based, non-thesis Master’s program geared towards students desiring a flexible graduate degree. The program is particularly designed for teachers at the K-12 level and who have an undergraduate degree in a specific science discipline, but desire the opportunity to pursue interdisciplinary graduate work. These students may reside throughout the country where the opportunity to obtain an interdisciplinary graduate degree in the sciences in minimal and a web-based course delivery system is necessary.

Course Descriptions for the Master of Arts in Interdisciplinary Sciences

BIO 6013. Genetics & Molecular Biology. (3) (Prerequisite: Consent of instructor). Three hours video and online. Analysis of the transmission of genetic information from molecular to organismal levels; examination of ways in which genotype determines phenotype. (Intended for K-12 science teachers. Course cannot be used to satisfy degree requirements in a non-distance degree program.)

BIO 6023. Principles of Evolutionary Biology. (Prerequisite: Consent of instructor). Three hours video and online. Current concepts in genetic variation, natural selection, and adaptation of populations; speciation, extinction, and phylogenetics; patterns of human evolution. (Intended for K-12 science teachers. Course cannot be used to satisfy degree requirements in a non-distance degree program.)

BIO 8023. Modern Microbiology. (3) (Prerequisite: Consent of instructor). Three hours video and online. Fundamental principles of microbiology, including microbial structure, replication, and diversity; role of microorganisms in human health and the environment. (Intended for K-12 science teachers. Course cannot be used to satisfy degree requirements in a non-distance degree program.)

BIO 8033. Advanced Cell Biology. (3) (Prerequisite: Consent of instructor). Three hours video and online. Study of eucaryotic cellular and sub-cellular structure and function; integration of cellular processes to understand the cell as a whole. (Intended for K-12 science teachers. Course cannot be used to satisfy degree requirements in a non-distance degree program.)

BIO 8043. Ecology & the Environment. (3) (Prerequisite: Consent of instructor). Three hours video and online. Investigation of biodiversity, ecological hierarchies, and interactions between biota and the environment. Includes an introduction to contemporary environmental science issues. (Intended for K-12 science teachers. Course cannot be used to satisfy degree requirements in a non-distance degree program.)

BIO 8073. Research Methods in Biological Sciences for Interdisciplinary Sciences. (3) (Prerequisites: Fifteen hours of BIO graduate work and consent of instructor). Three hours video and online. Defining research problems and using analytical techniques in Biological Sciences. Exploring how research in Biological Sciences relates to other scientific fields. (Intended for K-12 science teachers. Course cannot be used to satisfy degree requirements in a non-distance degree program.)

BIO 8083. Capstone in Interdisciplinary Sciences with an Emphasis on Biological Sciences. (3) (Prerequisites: Fifteen hours BIO graduate work and consent of instructor). Two hours lecture, three hours laboratory and observing. Provides field experience in the biological sciences through planned and supervised projects and field trips. (Intended for K-12 science teachers. Course cannot be used to satisfy degree requirements in a non-distance degree program.)
CH 6263. Industrial and Consumer Chemistry. (3) (Prerequisite: Consent of instructor). Three hours video and online. A survey of the chemistry used in the manufacture of products and how some common consumer products function. Topics will include the chemistry associated with polymers, dyes/colors, metal production and recycling, cleaners/detergents, cosmetics, batteries, paints, fertilizers, heating and cooling. Intended for K-12 science teachers. Course cannot be used to satisfy degree requirements in a non-distance degree program.

CH 6363. Chemistry of the Environment. (3) (Prerequisite: Consent of instructor). Three hours video and online. A survey of chemistry that naturally occurs in the environment. Chemical considerations of human impact upon the environment including agricultural chemistry; water, air and soil pollution; the ozone layer and global warming; and waste disposal and recycling. Intended for K-12 science teachers. Course cannot be used to satisfy degree requirements in a non-distance degree program.

CH 8073. Research Methods in Chemistry for Interdisciplinary Sciences. (3) (Prerequisite: fifteen hours CH graduate work and consent of instructor). Three hours video and online. Defining research problems and using analytical techniques in Chemistry. Exploring how research in Chemistry relates to other scientific fields. Intended for K-12 science teachers. Course cannot be used to satisfy degree requirements in a non-distance degree program.

CH 8083. Capstone in Interdisciplinary Sciences with an Emphasis on Chemistry. (3) (Prerequisite: fifteen hours CH graduate work and consent of instructor). Two hours lecture, three hours laboratory and observing. Provides field experience in chemistry through planned and supervised projects and field trips. Intended for K-12 science teachers. Course cannot be used to satisfy degree requirements in a non-distance degree program.

CH 8363. Analytical Methods in Forensics. (3) (Prerequisite: Consent of instructor). Three hours video and online. A survey of analytical techniques used in forensic science. Both wet chemical and instrumental methods used in the investigation of criminal activity will be presented. Intended for K-12 science teachers. Course cannot be used to satisfy degree requirements in a non-distance degree program.

CH 8463. Chemistry of Energy. (3) (Prerequisite: Consent of instructor). Three hours video and online. A survey of the chemistry associated with energy generation in modern society using thermochemical and kinetic principles. The chemistry of fossil fuels, bio-fuels, nuclear power, solar energy, batteries and fuel cells will be presented. Intended for K-12 science teachers. Course cannot be used to satisfy degree requirements in a non-distance degree program.

CH 8473. Chemical Structure and Bonding. (3) (Prerequisite: Consent of instructor). Three hours video and online. A survey of the structures that atoms and molecules assume and the theory of bonding in molecules. Quantum chemistry, electron configurations of atoms, VSEPR, molecular
orbital theory and aromaticity will all be discussed. Intended for K-12 science teachers. Course cannot be used to satisfy degree requirements in a non-distance degree program.

CH 8563. Organic Molecules and Polymeric Materials. (3) (Prerequisite: Consent of instructor). Three hours video and online. A survey of organic molecules and polymeric materials that have a profound influence on modern society. Topics will include medicinal compounds and their synthesis; polymerization reactions, polymer properties and the processing of the polymers; naturally-occurring compounds; and food chemistry. Intended for K-12 science teachers. Course cannot be used to satisfy degree requirements in a non-distance degree program.

GG 8073. Research Methods in Geosciences for Interdisciplinary Sciences. (3) (Prerequisite: fifteen hours GG or GR graduate work and consent of instructor). Three hours video and online. Defining research problems and using analytical techniques in Geosciences. Exploring how research in Geosciences relates to other scientific fields. Intended for K-12 science teachers. Course cannot be used to satisfy degree requirements in a non-distance degree program.

GG 8083. Capstone in Interdisciplinary Sciences with an Emphasis on Geosciences. (3) (Prerequisite: fifteen hours GG or GR graduate work and consent of instructor). Two hours lecture, three hours laboratory and observing. Provides field experience in geosciences through planned and supervised projects and laboratories and field trips. Intended for K-12 science teachers. Course cannot be used to satisfy degree requirements in a non-distance degree program.

GG 8113. Geology I: Processes and Products. (3) (Prerequisite: Consent of instructor). Three hours video and online. Principles of physical geology with emphasis on earth materials and processes, rock and mineral identification, and landscape development. Primarily for K-12 teachers.

GG 8123. Geology II: Earth, Time and Life. (3) (Prerequisite: GG 8113 or consent of instructor). Three hours video and online. Principles of historical geology with an emphasis on geological time, earth history, fossils, evolution, and extinction. Primarily for K-12 science teachers.

GG 8203. Ocean Science. (3) (Prerequisite: GG 8113 or consent of instructor). Three hours video and online. Comprehensive examination of the ocean world, focusing on the topography, physics, chemistry, and circulation of the oceans. Primarily for K-12 science teachers.

GG 8233. Environmental Geosciences. (3) (Prerequisite: GG 8113 or consent of instructor). Three hours video and online. Study of current environmental problems associated with the earth science realms; atmosphere, biosphere, hydrosphere, and lithosphere. Primarily for K-12 science teachers.

GG 8613. Hydrology. (3) (Prerequisite: GG 8113 or consent of instructor). Properties of Water; Principles of Surface and Ground Water Flow; Relationship between Surface Water and Aquifers; Flood Recurrence Intervals. Primarily for K-12 science teachers.

GR 6603. Climatology. (3) (Prerequisite: GR 1114 or GR 1123 or equivalent). Study of the elements and controls of weather and climate, distribution and characteristics of climatic regions, El Nino and climate change.

GR 8113. Meteorology I: Observations. (3) (Prerequisite: Consent of instructor). Three hours video and online. Principles of meteorology with emphasis on elements, controls, and forecasting of atmospheric
phenomena. Concentration on daily weather observations and the movement of weather systems. Primarily for K-12 science teachers.

GR 8123. Meteorology II: Forecasting and Storms. (3) (Prerequisite: GR 8113 or consent of instructor). Three hours video and online. Continuation of Meteorology I. Emphasis on the analysis of upper air forecast products, satellite and radar products, and numerical weather prediction to develop forecasts. Severe weather and tropical weather are also highlighted. Primarily for K-12 science teachers.

MA 6013. Applied Mathematics for Interdisciplinary Sciences. (3) (Prerequisite: MA 1313 or equivalent). Three hours video and online. A remedial course for students to take in the summer before they start the fall semester of the first year. Topics include algebra; special functions (including logarithmic, exponential, trigonometric, and hyperbolic functions); linear algebra (mainly matrices); introduction to derivatives and integrals; introduction to differential equations. Intended for K-12 science teachers. Course cannot be used to satisfy degree requirements in a non-distance degree program.

MA 6023. Theory of Equations for Interdisciplinary Sciences. (3) (Prerequisite: MA 1313 or equivalent). Three hours video and online. Topics include complex numbers; polynomials and their properties; roots of algebraic equations; systems of linear equations, determinants and matrices. Intended for K-12 science teachers. Course cannot be used to satisfy degree requirements in a non-distance degree program.

MA 6033. Studies in Applied Probability and Statistics. (3) (Prerequisite: MA 2113 (Same as ST 2113) or equivalent). Three hours video and online. Topics include graphical methods of presenting data; analysis of data; probability, binomial distribution, normal distribution; random sampling; linear regression and correlation. Intended for K-12 science teachers. Course cannot be used to satisfy degree requirements in a non-distance degree program.

MA 8033. Studies in Discrete Mathematics. (3) (Prerequisite: MA 6023 or equivalent). Three hours video and online. Selected topics from algebra, number theory, combinatorics, and graph theory. Intended for K-12 science teachers. Course cannot be used to satisfy degree requirements in a non-distance degree program.

MA 8053. Applied Linear Algebra for Interdisciplinary Sciences. (3) (Prerequisite: MA 6013 or equivalent). Three hours video and online. Topics will include applications to discrete dynamical systems and linear difference equations, stochastic matrices and Markov chains, linear models and curve fitting. Intended for K-12 science teachers. Course cannot be used to satisfy degree requirements in a non-distance degree program.

MA 8063. Differential Equations with Mathematical Modeling. (3) (Prerequisite: MA 6013 or equivalent). Three hours video and online. The derivative as a rate of change will be emphasized to construct mathematical models from various disciplines. Topics will include the building of mathematical models, elementary solution techniques, graphical approaches to analysis, and the use of software to approximate solutions. The goal will be a conceptual understanding of modeling using differential equations and the variety of ways to analyze these models for deeper understanding. Intended for K-12 science teachers. Course cannot be used to satisfy degree requirements in a non-distance degree program.

MA 8073. Research Methods in Mathematics and Statistics for Interdisciplinary Sciences. (3) (Prerequisite: fifteen hours MA graduate work and consent of instructor). Three hours video and online. Defining research problems and using analytical techniques in Mathematics. Exploring how research in Mathematics relates to other scientific fields. Intended for K-12 science teachers. Course cannot be used to satisfy degree requirements in a non-distance degree program.
MA 8083. Capstone in Interdisciplinary Sciences with an Emphasis on Mathematics and Statistics. (3) (Prerequisite: fifteen hours MA graduate work and consent of instructor). Two hours lecture, three hours laboratory and observing. Provides field experience in mathematics through planned and supervised projects and field trips. Intended for K-12 science teachers. Course cannot be used to satisfy degree requirements in a non-distance degree program.

PH 6033. Demonstration and Concepts for Physics Teachers I. (3) (Prerequisite: Consent of Instructor). Two hours lecture, three hours laboratory. Topics are those normally covered in first semester high school Physics. Equal emphasis on theory, problems, demonstrations, and laboratory.

PH 6043. Demonstration and Concepts for Physics Teachers II. (3) (Prerequisite: Consent of Instructor). Two hours lecture, three hours laboratory. Topics are those normally covered in second semester high school Physics. Equal emphasis on theory, problems, demonstrations, and laboratory.

PH 6053. Physical Science for Teachers. (3) (Prerequisite: Consent of Instructor). Three hours video and online. Topics are those normally covered in middle school physical science. Major emphasis on theory, demonstrations, and laboratory, and to a lesser degree on problem solving. (Intended for K-12 science teachers. Course cannot be used to satisfy degree requirements in a non-distance degree program.)

PH 8003. Topics for Physics Teachers. (3) (Prerequisite: Consent of instructor; MA 6023 or equivalent). Three hours video and online. Topics are those required to enable students to effectively teach K-8 physics topics, and also for teachers who may teach physics in middle school or high school. Major emphasis on theory, demonstrations, and laboratory and to a lesser degree on problem solving. (Intended for K-12 science teachers. Course cannot be used to satisfy degree requirements in a non-distance degree program.)
12 June 2007

Dr. Tim Chamblee, Chair  
University Committee on Courses and Curricula  
Mississippi State University

Dear Dr. Chamblee:

This letter is to accompany the Master of Arts in Interdisciplinary Sciences distance learning degree proposal.

As Head of the Department of Geosciences, I have been actively involved in the creation of this innovative degree. The faculty in my department fully support this degree program, our involvement in its creation, and how we will meet the student demand.

I am pleased to report that our faculty are solidly behind this initiative. They are looking forward to developing this program and meeting the needs of K-12 teachers throughout Mississippi, the region, and the country.

Sincerely,

Darrel Schmitz, Head  
Department of Geosciences
June 7, 2007

Dr. Tim Chamblee, Chair
University Committee on Courses and Curricula
Mississippi State University

Dear Dr. Chamblee:

This letter is to accompany the Master of Arts in Interdisciplinary Sciences distance learning degree proposal.

As Interim Head of the Department of Biological Sciences, I have been heavily involved in the creation of this innovative degree. The faculty members in my department have met several times to discuss this degree program, our involvement in its creation, and how we will simultaneously meet the student demand for this campus 5 and our current campus 1 degree programs. The faculty voted to fully participate in this degree program and to also develop a Masters program specific to Biological Sciences.

The faculty members are solidly behind this initiative. They are looking forward to developing this program and meeting the immense needs with regard to physical science content of K-12 teachers throughout Mississippi, the region, and the country.

Sincerely,

Nancy A. Reichert
5 June 2007

Dr. Tim Chamblee, Chair
University Committee on Courses and Curricula
Mississippi State University

Dear Dr. Chamblee:

This letter is to accompany the Master of Arts in Interdisciplinary Sciences distance learning degree proposal.

As Head of the Department of Chemistry, I have been heavily involved in the creation of this innovative degree. The faculty in my department have met several times to discuss this degree program, our involvement in its creation, and how we will meet the student demand.

I am pleased to report that our faculty are solidly behind this initiative. They are looking forward to developing this program and meeting the needs of K-12 teachers throughout Mississippi, the region, and the country.

Sincerely,

[Signature]

Keith T. Mead
Professor and Head
June 5, 2007

Dr. Tim Chamblee, Chair
University Committee on Courses and Curricula
Mississippi State University

Dear Dr. Chamblee:

This letter is to accompany the Master in Interdisciplinary Science Distance Learning degree proposal.

As Interim Head of the Department of Mathematics and Statistics, I have been heavily involved in the creation of this innovative on-line degree program. On November 2, 2006, Dr. Mark Binkley, Dr. Laura Crittenden, and Ms. Tammy Prather attended our departmental Faculty Meeting and gave a presentation on the Division of Academic Outreach and Continuing Education as well as a “Proposed Distance Program for the Physical Sciences and Mathematics.” As is our usual practice in the Department of Mathematics and Statistics, I then met with the departmental Advisory Committee to discuss this degree program, our involvement in its creation, and how we will meet the student demand. On February 23, 2006, I emailed our faculty to include them in the process and made it clear that the process was “extremely flexible at this stage.” Please refer to the attached email.

I am pleased to report that our Advisory Committee is solidly behind this initiative. We are looking forward to developing this program and meeting the immense needs with regards to the mathematical science content of K-12 teachers throughout Mississippi, the region, and the country.

Best Regards,

Mohsen Razzaghi
Interim Head
Colleagues:

I would like to update you on the proposal for a Master in Interdisciplinary Science (MIS).

Dr. Mark Binkley, Dr. Laura Crittenden, and Ms. Tammy Prather attended our Faculty Meeting on November 2nd, and gave a presentation on the Division of Academic Outreach and Continuing Education as well as a "Proposed Distance Program for the Physical Sciences and Mathematics." Since that meeting, I have had several other meetings with other Department Heads and with Mark. I have also met with the Advisory Committee on two different occasions and asked for preliminary opinions on whether or not we should participate, and the outcome of these meetings was that we will participate in the program.

The next step, according to Mark, is to send only the title of five courses in each discipline and one for remedial classes for Physics and Chemistry. This degree is intended to satisfy the No Child Left Behind Act for K-8 teachers, and as far as I know, most of our participants would be middle school teachers.

I've attached a very tentative and preliminary draft for your review along with a proposed list of courses. Please note that the names of our courses and preliminary course descriptions have already been approved by the Advisory Committee.

The entire process is extremely flexible at this stage. Please note that we will submit ONLY the name of our courses at this time with no description. Finalized course descriptions will be submitted at a later time.

As we progress, I will form a task force that will be very active in helping with this course proposal. When that time comes, I will ask for willing participants.

Best Regards,

Mohsen
4 June 2007

Dr. Tim Chamblee, Chair
University Committee on Courses and Curricula
Mississippi State University

Dear Dr. Chamblee:

This letter is to accompany the Master of Arts in Interdisciplinary Sciences distance learning degree proposal.

As Head of the Department of Physics and Astronomy, I have been heavily involved in the creation of this innovative on-line degree program. The faculty members in my department have met several times to discuss this degree program, our involvement in its creation, and how we will simultaneously meet the student demand, the required high level of the material to be covered, and the self-sustaining financial model for this degree program. In fact, the Departmental faculty voted unanimously in a Feb. 21, 2007 meeting on each of the PH courses to be developed and included in the degree program. This unanimous vote included the 4 current face-to-face 6000-level classes for physics teachers that have been offered by the Departmental faculty during summer sessions, and would be revamped for on-line delivery under this degree.

I am pleased to report that our faculty members are solidly behind this initiative. They are looking forward to developing this program and meeting the immense needs with regards to physical science content of K-12 teachers throughout Mississippi, the region, and the country.

Sincerely

Mark A. Novotny, Head
Department of Physics and Astronomy
Fellow, American Physical Society
APPROVAL FORM FOR

DEGREE PROGRAMS

MISSISSIPPI STATE UNIVERSITY

NOTE: This form is a cover sheet that must accompany the degree program change proposal. The actual proposal should be prepared in accordance with format requirements provided in the Guide and Format for Curriculum Proposals published by the UCCC. Both cover sheet and proposal should be submitted, along with all required copies, to UCCC, Butler-Williams Building, Suite B, 100 Walker Road, (Mail Stop 9699).

College or School: Engineering
Contact Person: Edward B. Allen
Nature of Change: Modification

New or Current Degree Program Name:
Bachelor of Science in Software Engineering

Department: Computer Science and Engineering
Phone: x57449 E-mail: edward.allen@msstate.edu
Date Initiated: 8/22/08 Effective Date: Spring 2009

Summary of Proposed Changes:

No change in degree requirements is proposed.

A non-degree program is proposed to govern the combination of bachelor-level and masters-level studies, so that a typical student could complete a Bachelor of Science degree in Computer Science or in Software Engineering and a Master of Science degree in Computer Science in four academic years plus one calendar year. This will be accomplished by counting a maximum of nine hours of graduate courses toward both degrees.

Current Graduate School policy does not allow a graduate course to count toward both a bachelor degree and a master degree. An exception to this policy is proposed, with attendant programmatic safeguards against abuse.

See also the companion proposed changes to the Master of Science Degree in Computer Science and the Bachelor of Science Degree in Computer Science.

Approved:

Date:

Department Head

Chair, College or School Curriculum Committee

Dean of College or School

Chair, University Committee on Courses and Curricula

Chair, Graduate Council (if applicable)

Chair, Deans Council
Proposal for Modification of the B.S. Program in Software Engineering

1. CATALOG DESCRIPTION

Relevant Section of Current Catalog Description

None.

Relevant Section of Proposed Catalog Description

No changes in degree requirements are proposed.

Add the following paragraph to the introductory section on Department of Computer Science and Engineering (2007-2008 Undergraduate Bulletin of Mississippi State University, p.133)

Department of COMPUTER SCIENCE and ENGINEERING (CSE)

... A 5-year B.S./M.S. program is available where a maximum of nine hours of graduate courses taken in the senior year can count toward the Bachelor of Science degree in Computer Science or in Software Engineering and toward the Master of Science degree in Computer Science. During the senior year, graduate courses at the 6000-level will count toward the Bachelor of Science degree similar to the corresponding 4000-level courses. During the senior year, graduate courses at the 7000-level or above will count toward the Bachelor of Science degree as technical electives. Details regarding admission and program details are in the Graduate Bulletin.

Detailed List of Changes

No change in degree requirements is proposed.

Overall, a non-degree program is proposed to govern the combination of bachelor-level and masters-level studies, so that a typical student could complete a Bachelor of Science degree in Computer Science or in Software Engineering and a Master of Science degree in Computer Science in four academic years plus one calendar year. This will be accomplished by counting a maximum of three graduate courses toward both degrees.

See the companion Proposal for Master of Science Degree in Computer Science for details.

2. CURRICULUM OUTLINE

No change.

3. JUSTIFICATION

The following is identical to the justification for the corresponding Master of Science in Computer Science proposal.

After extensive discussion, the faculty of the Department of Computer Science and Engineering voted in support of the proposed 5-year B.S./M.S. program in Computer Science on 4/28/08.
Benefits

The goal of the proposed program is to make graduate study at the master’s level study in computer science more attractive to honors-quality undergraduates at Mississippi State University. This program would accelerate the Master’s degree by one semester (9 credits).

Publicity about this program may stimulate more juniors majoring in Computer Science or Software Engineering to think about attending graduate school earlier than they would have otherwise.

The availability of this program may attract more honors-quality freshmen and sophomores into the Computer Science major and the Software Engineering major.

Detailed Rationale

a. An admission process is defined. An admissions process is defined that is similar to the admission process for an M.S. degree. The Graduate Studies Committee of the department considers the qualifications of each graduate studies applicant as a whole, and therefore, prescriptive GPA and test scores for admission are not desirable. This process will assure that students in the program have the qualifications necessary to be successful in graduate study.

b. A student can enter the program when senior standing is achieved. “Senior year” is a synonym for “senior standing” irrespective of the calendar duration.

c. A maximum of nine hours of graduate courses can count toward both degrees. The maximum of nine hours of graduate courses counting toward both degrees is consistent with the policy for double master’s degrees (Graduate Bulletin 2007-2008, p. 57).

Transfer credit from one master’s degree at MSU toward a second MSU master’s degree is also limited to a maximum of nine hours.

Some computer science courses at the 6000-level have labs, and thus, are four credits. Such courses are acceptable.

d. Course loads are limited in those terms of the senior year when the student enrolls in graduate courses. Current rules limit the course load of seniors who take graduate courses. The proposal balances timely completion of the bachelor degree with the extra work that graduate courses entail by limiting course loads.

e. Graduate courses fit into the bachelor curriculum. Split-level courses (6000-level) fit naturally into bachelor degree requirements, because the corresponding 4000-level courses are already specified. Advanced courses (7000-level and above) are elective topics.

f. The student will complete bachelor degree requirements in the normal manner. No changes in bachelor degree requirements are proposed.

g. After earning the bachelor degree, the student will complete the M.S. degree requirements in the normal manner. No changes in master’s degree requirements are proposed.
Comparison to Other Universities

A survey of Web sites of a number of peer and peer-plus universities was conducted, including all universities in the SEC, all land-grant universities in the Southeast that offer a Ph.D. program in computer science, and selected other universities. We found the following which allow coursework to be counted toward both bachelor and master’s degrees in Computer Science.

- **University of Florida (Computer Science).** “Combined Bachelor’s/Master’s Degree Program” allows students to double-count graduate courses. Students who qualify can enroll in 12 credits of graduate courses during the junior and senior years.

- **University of South Carolina (Computer Science and Engineering).** “Bachelor’s/Master’s Accelerated Programs” allows up to nine credit hours at graduate level to both B.S. and M.S. degrees. Entrance requires 3.4 GPA.

- **North Carolina State University (Computer Science).** “Accelerated Bachelor’s/Master’s (ABM) Degree Program” allows juniors and seniors to count up to four graduate computer science courses toward both degrees.

- **Southern Methodist University (Computer Science and Engineering).** “4+1 Program” allows computer science and computer engineering student to complete both a B.S. and M.S. degree in five years. Up to nine credits of graduate work can be applied to both degrees.

- **Fordham University (Computer Science).** “Accelerated M.S. Program in Computer Science” requires a student to take two graduate courses in the senior year, and four graduate courses each semester in the post-bachelor year.

- **Florida International University (Computer Science).** “Combined Bachelor of Science/Master of Science degree programs” allows double-counting of graduate courses, reducing the time to earn both degrees by a semester or more.

- **Virginia Tech (Computer Science).** “5 Year B.S./M.S. Program” requires the student to take four graduate courses in the senior year instead of corresponding 4000-level courses.

- **University of Illinois (Urbana-Champaign) (Computer Science and Engineering).** “5 Year B.S./M.S. in Computer Science Program” seems to allow some courses to count toward both degrees. However, the details are not clear on the Web site.

The proposed program is consistent with similar programs at some peer and peer-plus institutions.

4. **SUPPORT**

No changes in support are applicable.

5. **PROPOSED 4-LETTER ABBREVIATION**

No change.

6. **EFFECTIVE DATE**

Spring term 2009
DEGREE PROGRAMS
MISSISSIPPI STATE UNIVERSITY

NOTE: This form is a cover sheet that must accompany the degree program change proposal. The actual proposal should be prepared in accordance with format requirements provided in the Guide and Format for Curriculum Proposals published by the UCCC. Both cover sheet and proposal should be submitted, along with all required copies, to UCCC, Butler-Williams Building, Suite B, 100 Walker Road, (Mail Stop 9699).

College or School: Engineering
Contact Person: Edward B. Allen
Nature of Change: Modification
New or Current Degree Program Name: Bachelor of Science in Computer Science

Department: Computer Science and Engineering
Phone: x57449 E-mail: edward.allen@msstate.edu
Date Initiated: 8/22/08 Effective Date: Spring 2009

Summary of Proposed Changes:

No change in degree requirements is proposed.

A non-degree program is proposed to govern the combination of bachelor-level and masters-level studies, so that a typical student could complete a Bachelor of Science degree in Computer Science or in Software Engineering and a Master of Science degree in Computer Science in four academic years plus one calendar year. This will be accomplished by counting a maximum of three graduate courses toward both degrees.

Current Graduate School policy does not allow a graduate course to count toward both a bachelor degree and a master degree. An exception to this policy is proposed, with attendant programmatic safeguards against abuse.

See also the companion proposed changes to the Master of Science Degree in Computer Science and the Bachelor of Science Degree in Software Engineering.

Approved: __________________________ Date: __________________________
Department Head

__________________________
Chair, College or School Curriculum Committee

__________________________
Dean of College or School

__________________________
Chair, University Committee on Courses and Curricula

__________________________
Chair, Graduate Council (if applicable)

__________________________
Chair, Deans Council

RECEIVED 09/30/08

RECEIVED NOV 04 2008

GRADUATE SCHOOL
Proposal for Modification of the B.S. Program in Computer Science

1. CATALOG DESCRIPTION

Relevant Section of Current Catalog Description
None.

Relevant Section of Proposed Catalog Description
No changes in degree requirements are proposed.

Add the following paragraph to the introductory section on Department of Computer Science and Engineering (2007-2008 Undergraduate Bulletin of Mississippi State University, p.133)

Department of COMPUTER SCIENCE and ENGINEERING (CSE)
...
A 5-year B.S./M.S. program is available where a maximum of nine hours of graduate courses taken in the senior year can count toward the Bachelor of Science degree in Computer Science or in Software Engineering and toward the Master of Science degree in Computer Science. During the senior year, graduate courses at the 6000-level will count toward the Bachelor of Science degree similar to the corresponding 4000-level courses. During the senior year, graduate courses at the 7000-level or above will count toward the Bachelor of Science degree as technical electives. Details regarding admission and program details are in the Graduate Bulletin.

Detailed List of Changes

No change in degree requirements is proposed.

Overall, a non-degree program is proposed to govern the combination of bachelor-level and masters-level studies, so that a typical student could complete a Bachelor of Science degree in Computer Science or in Software Engineering and a Master of Science degree in Computer Science in four academic years plus one calendar year. This will be accomplished by counting a maximum of three graduate courses toward both degrees.

See the companion Proposal for Master of Science Degree in Computer Science for details

2. CURRICULUM OUTLINE

No change.

3. JUSTIFICATION

The following is identical to the justification for the corresponding Master of Science in Computer Science proposal.

After extensive discussion, the faculty of the Department of Computer Science and Engineering voted in support of the proposed 5-year B.S./M.S. program in Computer Science on 4/28/08.
Benefits

The goal of the proposed program is to make graduate study at the master’s level study in computer science more attractive to honors-quality undergraduates at Mississippi State University. This program would accelerate the Master’s degree by one semester (9 credits).

Publicity about this program may stimulate more juniors majoring in Computer Science or Software Engineering to think about attending graduate school earlier than they would have otherwise.

The availability of this program may attract more honors-quality freshmen and sophomores into the Computer Science major and the Software Engineering major.

Detailed Rationale

a. **An admission process is defined.** An admissions process is defined that is similar to the admission process for an M.S. degree. The Graduate Studies Committee of the department considers the qualifications of each graduate studies applicant as a whole, and therefore, prescriptive GPA and test scores for admission are not desirable. This process will assure that students in the program have the qualifications necessary to be successful in graduate study.

b. **A student can enter the program when senior standing is achieved.** “Senior year” is a synonym for “senior standing” irrespective of the calendar duration.

c. **A maximum of three graduate courses can count toward both degrees.** The maximum of nine hours of graduate courses counting toward both degrees is consistent with the policy for double master’s degrees (*Graduate Bulletin 2007-2008*, p. 57).

Transfer credit from one master’s degree at MSU toward a second MSU master’s degree is also limited to a maximum of nine hours.

Some computer science courses at the 6000-level have labs, and thus, are four credits. Such courses are acceptable.

d. **Course loads are limited in those terms of the senior year when the student enrolls in graduate courses.** Current rules limit the course load of seniors who take graduate courses. The proposal balances timely completion of the bachelor degree with the extra work that graduate courses entail by limiting course loads.

e. **Graduate courses fit into the bachelor curriculum.** Split-level courses (6000-level) fit naturally into bachelor degree requirements, because the corresponding 4000-level courses are already specified. Advanced courses (7000-level and above) are elective topics.

f. **The student will complete bachelor degree requirements in the normal manner.** No changes in bachelor degree requirements are proposed.

g. **After earning the bachelor degree, the student will complete the M.S. degree requirements in the normal manner.** No changes in master’s degree requirements are proposed.
Comparison to Other Universities

A survey of Web sites of a number of peer and peer-plus universities was conducted, including all universities in the SEC, all land-grant universities in the Southeast that offer a Ph.D. program in computer science, and selected other universities. We found the following which allow coursework to be counted toward both bachelor and master’s degrees in Computer Science.

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- **University of Illinois (Urbana-Champaign) (Computer Science and Engineering).** “5 Year B.S./M.S. in Computer Science Program” seems to allow some courses to count toward both degrees. However, the details are not clear on the Web site.

The proposed program is consistent with similar programs at some peer and peer-plus institutions.

4. **SUPPORT**

No changes in support are applicable.

5. **PROPOSED 4-LETTER ABBREVIATION**

No change.

6. **EFFECTIVE DATE**

Spring term 2009