Rationale for Modified Master’s Degree Pathways for the STEMteach MSE in Secondary Education Option

Background: STEMteach is a cohort-based initial teacher certification program for science, technology, engineering, and math (STEM) degree holders. The program includes the option to earn a master’s degree in secondary education after successful completion of the one-year initial certification coursework.

The program is being offered through Outreach and Continuing Education and is designed for people who

- realize relatively late in their undergraduate studies (i.e. junior or senior year) that they want to pursue teaching
- want to earn both a bachelor’s degree in science or mathematics AND teaching certification
- want compact, rigorous, and STEM-focused teacher training
- have recently graduated but are not satisfied with their career options
- are working but want to make a career change to teaching

The STEMteach program was launched in June 2015 with a cohort of 8 teacher candidates. Surveys conducted by the UTeach Institute in Austin, as part of the NSF Robert Noyce Capacity Building grant, which has generously contributed funds toward the development and launch activities of the program, have revealed that all of the current candidates intend to complete the optional master’s degree.

The goal of this request is to modify the structure of the master’s degree requirements to best serve the initial licensure completers. This includes candidates who seek to complete the master’s degree while working as a teacher as well as those who seek to focus on completing the master’s degree before beginning a career in teaching.

The approved STEMteach program initial certification curriculum, the current Master’s Degree Pathways, and the proposed Master’s Degree Pathways are shown below. The three master’s degree pathways (Plans A, B, and C) represent the standard graduate pathways in effect at the time of the program approval. The proposed Master’s Degree Pathways reflect changes enacted under the approved Faculty Senate Motion 2014-2015/82.
(Approved) STEMteach Curriculum

Initial Certification Coursework (24 graduate degree credits, 30 total graduate course credits)

UTCH 701  Step 1 and 2 Combination (3 cr)
UTCH 702  Knowing and Learning in Math and Science (3 cr)
UTCH 703  Classroom Interactions (3 cr)
UTCH 704  Project-Based Instruction (3 cr)
UTCH 705  STEM Content Area Literacy (3 cr)
UTCH 706  Functions and Modeling (3 cr)
UTCH 707  Perspectives on Science and Mathematics (3 cr)
UTCH 708  Apprentice Teaching Seminar (3 cr)
*UTCH 709  STEM Apprentice Teaching for Secondary and Middle Grades (6 cr)

*Apprentice Teaching credits do not count toward required credits for optional master’s degree

(Approved) Master’s Degree Pathways (optional, 6-10 additional graduate credits)

Plan A (Thesis), 6 additional graduate credits:

- TED 760 Methods of Research (3 cr, on-line)
- TED 799 Thesis (also could be a STEM 799 course) (3 cr)
- Oral or written comprehensive exam

Plan B (Research Paper), 6 additional graduate credits:

- TED 760 Methods of Research (3 cr, on-line)
- TED 798 Independent Research (also could be a STEM 798 course) (3 cr)
- Oral or written comprehensive exam

Plan C (Additional Credits), 10 additional graduate credits:

- TED 760 Methods of Research (3 cr, on-line)
- 7 credits of 500 level or greater coursework
- Oral or written comprehensive exam

Transfer or elective credits must be approved by the Program Director

All requirements for this degree must be completed within seven years from the start of the first term.
This program change request seeks to update the master’s degree pathways so that they resemble the newly approved standard pathways in both nomenclature and structure while allowing more tailored approaches to completing the master’s degree.

(Proposed) Master’s Degree Pathways (optional, 6-10 additional graduate credits)

1. Thesis (6 additional credits; 30 total credits)
   - Methods of Research (TED 760, 3 cr)
   - Thesis (BIOL 799, MATH 799, or TED 799; 3 cr)
   - Oral or written comprehensive exam

2. Research Paper (6 additional credits; 30 total credits)
   - Methods of Research (TED 760, 3 cr)
   - Choose one of the following area electives:
     - (Recommended) Professional Development Practicum (TED 780, 3 cr)
     - Independent Research (BIOL 798, PHYS 798, MATH 798, GEOL 798, or TED 798; 3 cr)
     - Final Research Paper (BIOL 793, 3 cr)
   - Oral or written comprehensive exam

3. Capstone Experience (10 additional credits; 34 total credits)
   - 10 credits of approved area electives
     - *Transfer or elective credits must be approved by the chair of teacher education or the STEMteach master teacher.*
     - *Students must meet the eligibility requirements for each course. This may include department chair approval.*
     - *Courses may be offered on a rotating, as-needed, or a limited basis.*
     - *Students can transfer up to 9 graduate credits toward the master’s degree.*
     - *No more than nine graduate credits can be at the 500 level.*
     - *All requirements for this degree must be completed within seven years from the start of the first term.*
     - *Current Graduate Studies policies apply:* [https://www.uwrf.edu/GraduateStudies/CurrentStudentResources/GraduateDefinitions.cfm](https://www.uwrf.edu/GraduateStudies/CurrentStudentResources/GraduateDefinitions.cfm)

In this proposed pathway, the Research Paper option (formerly Plan B) has a broader array of courses with which candidates could research and mature in their fields. Specifically, TED 780 is included as a discrete and preferred option. As part of this “induction” course, new teachers will develop as educators by completing an action research project. This course is also intended to support new teachers with classroom concerns and with state mandated professional development and thereby promote inquiry, research, and reflection while fostering a commitment to lifelong learning and professional development. Having a strong foundation of support and information for teachers during their early years in the profession is intended to improve job satisfaction, teacher effectiveness, and retention.
The Capstone Experience (formerly Plan C) follows the lead of graduate studies to rename this option and to remove the requirement for TED 760. The latter has the effect of focusing this option on advanced content while making degree completion more accessible for new teachers who are working out of the region.

Finally, the name “Plan A” has been removed from the first option.

Appendix A. UWRF courses which are approved for completion of area electives
Appendix B. Advising sheet for completion of area electives
Appendix C. Communication with Department Chairs – Chemistry
Appendix D. Communication with Department Chairs – Computer Science and Information Systems
Appendix E. Communication with Department Chairs – Teacher Education
Appendix F. Communication with Department Chairs – Mathematics
Appendix G. Communication with Department Chairs – Physics
Appendix H. Communication with Department Chairs – Plant and Earth Science
Appendix I. Communication with Department Chairs – Biology
Appendix J. Communication with Outreach and Continuing Education
Appendix A. UWRF courses which are approved for completion of area electives

The following list of UWRF courses would be allowable for completion of area electives. The suitability of each course for a given student depends on each student’s background, the course enrollment requirements, and the course availability. Please see Appendix B for an example of the current subset of this list that will be made available to students.

BIOL 500 Environmental Education
BIOL 514 Plant Pathology
BIOL 520 Plant Structure & Function
BIOL 523 Parasitology
BIOL 524 Microbiology
BIOL 544 Wildlife Biology
BIOL 553 Histology
BIOL 589 Special Topics in Biology
BIOL 644 Ornithology
BIOL 645 Wildlife & Visitor Management in Nature Tourism
BIOL 651 Molecular Biology
BIOL 663 Animal Cell Culture
BIOL 689 Special Topics in Biology
BIOL 700 Cardiac Anatomy and Physiology
BIOL 701 Neuroscience
BIOL 702 Emrg Infct Diseases
BIOL 703 Field Botany for Teachers
BIOL 707 Biotechnology Workshop for Teachers
BIOL 710 Medical Pharmacology
BIOL 721 Bioinformatics for Teachers
BIOL 722 Evolution for Teachers
BIOL 789 Special Topics in Biology
BIOL 798 Independent Research
BIOL 799 Thesis

CSIS 730 Enterprise and Cloud Computing
CSIS 731 Distributed and Mobile Computing
CSIS 732 Information Security
CSIS 733 Computing for Data Science and Big Data Analysis
CSIS 734 Software Engineering and Design Patterns
CSIS 735 Machine Learning and Knowledge Discovery
CSIS 736 Technology Innovation, New Product Development and Sustainability
CSIS 738 Practicum

ESM 500 Environmental Education

GEOL 589 Special Topics in Geology
GEOL 689 Special Topics in Geology
GEOL 700 Field Hydrology and Geomorphology for Teachers
GEOL 705 Field Geology/Teachers
GEOL 710 Planetary Geology
GEOL 789 Special Topics in Geology
GEOL 798 Independent Research

MATH 636 History of Mathematics (see notes in Appendix E)
MATH 705 Integrating Emerging Technologies in the Teaching and Learning of Mathematics
MATH 711 Geometry for Educators
MATH 726 Statistics for Teachers
MATH 736 Discrete Mathematics for Education
MATH 751 Modern Algebra for Educators
MATH 756 Probability for Educators
MATH 766 Calculus for Educators
MATH 798 Independent Research
MATH 799 Thesis

PHYS 700 Mechanics for Secondary School Teachers
PHYS 701 Electricity and Magnetism for Secondary School Teachers
PHYS 704 Modern Physics for Secondary School Teachers
PHYS 705 Thermodynamics in Secondary School
PHYS 717 Astronomy SST
PHYS 718 Astrophysics for Secondary School Teachers
PHYS 720 Optics SST
PHYS 721 Acoustics for SST
PHYS 723 Laser Physics for Secondary School Teachers
PHYS 789 Special Topics in Physics
PHYS 798 Independent Research

TED 689 Special Topics in Teacher Ed
TED 695 Contemporary Issues in Education
TED 760 Methods of Research
TED 789 Special Topics in Education
TED 798 Independent Research
TED 799 Thesis

TED 740 History, Philosophy, Multicultural Education
TED 747 Curriculum K-12
TED 750 Advanced Educational Psychology
TED 755 Social Issues in Education
TED 768 Curriculum of the Secondary School
TED 776 Comp Ed - Overseas Field Experience
TED 780 Professional Development Practicum
TED 783 Supervising Field Experience
TED 701 Psychology of Teaching and Learning
TED 706 Historical, Philosophical, and Multicultural Foundations of Education
TED 721 Introduction to Service Learning
TED 722 Service Learning Management and Curriculum
TED 723 Service-Learning Research/Evaluation/Assessment
TED 724 Service Learning through Reflective Practice
TED 725 Service-Learning Practicum
TED 730 Introduction to Community Education
TED 733 Administration of Community Education
TED 734 Extended Learning Administration
TED 736 Family Community School Partnerships
TED 737 Community Education Practicum
Appendix B. Advising sheet for completion of area electives.

This sheet will be updated as needed to reflect the current or most likely course offerings from among the list of approved courses in Appendix A.

**Biology:**
- BIOL 700 Cardiac Anatomy and Physiology
- BIOL 710 Medical Pharmacology

**Computer Science and Information Systems:**
- CSIS 730 Enterprise and Cloud Computing
- CSIS 731 Distributed and Mobile Computing
- CSIS 732 Information Security
- CSIS 733 Computing for Data Science and Big Data Analysis
- CSIS 734 Software Engineering and Design Patterns
- CSIS 735 Machine Learning and Knowledge Discovery
- CSIS 736 Technology Innovation, New Product Development and Sustainability
- CSIS 738 Practicum

**Mathematics:**

*These courses are offered on a three-year rotating basis:*
- MATH 711 Geometry for Educators
- MATH 726 Statistics for Teachers
- MATH 736 Discrete Mathematics for Education
- MATH 751 Modern Algebra for Educators
- MATH 756 Probability for Educators
- MATH 766 Calculus for Educators

*This course is offered Spring 2017 and expected to be offered at least once every three years:*
- MATH 705 Integrating Emerging Technologies in the Teaching and Learning of Mathematics

*MATH 436 is offered every fall face-to-face and summers online. If there is demand, MATH 636 students could be added to the MATH 436 sections. Note that at some time in the future, MATH 436 (and MATH 636) will be removed from the regular offerings.*
- MATH 636 History of Mathematics

*These courses depend on the student finding an advisor willing to direct the independent study/research:*
- MATH 798 Independent Research
- MATH 799 Thesis
Physics:

The following courses are taught on an occasional basis without a planned rotation:

- PHYS 700 Mechanics for Secondary School Teachers
- PHYS 701 Electricity and Magnetism for Secondary School Teachers
- PHYS 704 Modern Physics for Secondary School Teachers
- PHYS 705 Thermodynamics in Secondary School
- PHYS 717 Astronomy SST
- PHYS 718 Astrophysics for Secondary School Teachers
- PHYS 720 Optics SST
- PHYS 721 Acoustics for SST
- PHYS 723 Laser Physics for Secondary School Teachers

These courses are offered on a regular basis as need arises:

- PHYS 789 Special Topics in Physics
- PHYS 798 Independent Research

Plant and Earth Science:

- ESM 500 Environmental Education

The following courses are not taught regularly and enrollment is handled on an individual basis:

- GEOL 589 Special Topics in Geology
- GEOL 689 Special Topics in Geology
- GEOL 700 Field Hydrology and Geomorphology for Teachers
- GEOL 705 Field Geology/Teachers
- GEOL 710 Planetary Geology
- GEOL 789 Special Topics in Geology
- GEOL 798 Independent Research

Teacher Education:

- TED 689 Special Topics in Teacher Ed
- TED 695 Contemporary Issues in Education
- TED 760 Methods of Research
- TED 780 Professional Development Practicum
- TED 789 Special Topics in Education
- TED 798 Independent Research
- TED 799 Thesis
Appendix C. Communication with Department Chairs - Chemistry

From: Karl Peterson
Sent: Monday, November 28, 2016 1:47 PM
To: Diane Bennett <diane.bennett@uwrf.edu>
Subject: RE: Future Upper Division Chemistry Course Offerings

Hi Diane

All of our graduate course served the old MSE program. We have not offered them since that program went dormant sometime around 2005.

The following courses are the graduate level courses of undergraduate courses that we offer on a regular basis. The graduate-level version have not been offered in over a decade. In theory, the syllabi could be updated in the current HLC process so that they could be available for the STEMteach MSE program. Assuming that the faculty that teach the courses are willing do the graduate-level add-ons when needed.

CHEM 540 Physical Chemistry Biological Systems
CHEM 541 Thermodynamics & Kinetics
CHEM 556 Chemistry Instrumentation Lab
CHEM 561 Biochemistry I
CHEM 562 Biochemistry II
CHEM 566 Biochemistry Laboratory
CHEM 589 Special Topics in Chemistry
CHEM 661 Pharmacology

The following courses are the graduate level courses of undergraduate courses that we no longer offer.

CHEM 601 Advanced Chemistry Lab I
CHEM 602 Advanced Chemistry Lab II
CHEM 622 Advanced Inorganic Chemistry I
CHEM 632 Advanced Organic Chemistry

The following are graduate courses that were created and offered specifically for the old MSE program and I do not see us ever offering them again, as there is no undergraduate equivalent to drive meaningful enrollments.

CHEM 706 Giant Molecules: Chemistry of Polymers
CHEM 707 Bio Organic Chemistry Concepts
CHEM 708 DNA
CHEM 720 Forensic Science for Secondary Teachers
CHEM 729 Chemical Structure-Property Relationships
CHEM 751 AP Chemistry Experiments-Visible Spectroscopy
CHEM 770 Chemical Demos
CHEM 780 Seminar
CHEM 789 Special Topics in Chemistry
CHEM 793 Final Research Paper
CHEM 798 Independent Research
CHEM 799 Thesis

We do have new undergraduate courses that, again in theory, could have graduate-level versions created, if faculty were interested.

CHEM 311: Polymer Chemistry (as CHEM 511)
CHEM 316: Polymer Chemistry Laboratory (as CHEM 516)
CHEM 322: Inorganic Chemistry (as CHEM 522)
CHEM 325: Inorganic Chemistry Lab (as CHEM 525)
CHEM 333/334: Organic Synthesis and Organic Synthesis Laboratory (as CHEM 533/534)
CHEM 345: Physical Chemistry Laboratory (as CHEM 545)
CHEM 355: Separation Science Laboratory (as CHEM 555)

Does this help? At this point we are opting to not update syllabi for the graduate courses (we voted to make them inactive, but granted this was prior to your proposal going to Faculty Senate earlier this fall). Would you or other STEMteach representatives like to come to one of our staff meetings to talk about the potential role of these courses in the program to try to convince my faculty to update syllabi so that the courses are available?

Karl

Karl P. Peterson, Ph.D.
Professor and Chair
Department of Chemistry and Biotechnology
University of Wisconsin-River Falls
715-425-3523

From: Diane Bennett
Sent: Monday, November 28, 2016 1:25 PM
To: Karl Peterson
Cc: Ian Williams
Subject: Future Upper Division Chemistry Course Offerings

Dear Karl,

I am working on a program change proposal on behalf of the STEMteach MSE program. We were asked to provide a list of UWRF courses that would be allowable for completion of content area electives. (We realize that the suitability of each course depends on each student’s background, course enrollment requirements, and course availability.) I wonder if you could indicate below which of the following are likely future course offerings for your department.

CHEM 540 Physical Chemistry Biological Systems
CHEM 541 Thermodynamics & Kinetics
CHEM 556 Chemistry Instrumentation Lab
CHEM 561 Biochemistry I
CHEM 562 Biochemistry II
CHEM 566 Biochemistry Laboratory
CHEM 589 Special Topics in Chemistry
CHEM 601 Advanced Chemistry Lab I
CHEM 602 Advanced Chemistry Lab II
CHEM 616 Polymer Laboratory
CHEM 622 Advanced Inorganic Chemistry I
CHEM 632 Advanced Organic Chemistry
CHEM 661 Pharmacology
CHEM 706 Giant Molecules: Chemistry of Polymers
CHEM 707 Bio Organic Chemistry Concepts
CHEM 708 DNA
CHEM 720 Forensic Science for Secondary Teachers
CHEM 729 Chemical Structure-Property Relationships
CHEM 751 AP Chemistry Experiments-Visible Spectroscopy
CHEM 770 Chemical Demos
CHEM 780 Seminar
CHEM 789 Special Topics in Chemistry
CHEM 793 Final Research Paper
CHEM 798 Independent Research
CHEM 799 Thesis

Thank you,
Diane

Diane Bennett, Ph.D.
Director of Grants and Research
University of Wisconsin – River Falls
diane.bennett@uwrf.edu
715-425-3195
Appendix D. Communication with Department Chairs – Computer Science and Information Systems

All except for the special topic 789.

Hossein Najafi, PhD
Computer Science and Information Systems Department, Professor and Chair
University of Wisconsin, River Falls
410 S. 3rd St.
River Falls, WI 54022
715-425-4456

From: Diane Bennett <diane.bennett@uwrf.edu>
Date: Monday, November 28, 2016 at 1:28 PM
To: Hossein Najafi <hossein.najafi@uwrf.edu>
Cc: Ian Williams <ian.williams@uwrf.edu>
Subject: Future Upper Division CSIS Course Offerings

Dear Hossein,

I am working on a program change proposal on behalf of the STEMteach MSE program. We were asked to provide a list of UWRF courses that would be allowable for completion of content area electives. (We realize that the suitability of each course depends on each student’s background, course enrollment requirements, and course availability.) I wonder if you could indicate below which of the following are likely future course offerings for your department.

CSIS 730 Enterprise and Cloud Computing
CSIS 731 Distributed and Mobile Computing
CSIS 732 Information Security
CSIS 733 Computing for Data Science and Big Data Analysis
CSIS 734 Software Engineering and Design Patterns
CSIS 735 Machine Learning and Knowledge Discovery
CSIS 736 Technology Innovation, New Product Development and Sustainability
CSIS 738 Practicum
CSIS 789 Special Topics in Computer Science

Thank you,

Diane

Diane Bennett, Ph.D.
Director of Grants and Research
University of Wisconsin – River Falls
diane.bennett@uwrf.edu
715-425-3195
Appendix E. Communication with Department Chairs – Teacher Education

Diane,

I have identified below those courses which are still current and therefore might be eligible for STEMteach candidates in the future.

Those with an asterisk (*) are offered on a semi-regular process and / or seem most likely as possibilities for STEMteach completers, knowing what I know about that program.

I hope this does the trick for now.

Geoff

Geoffrey Scheurman
Professor and Chair
Department of Teacher Education
244 Wyman Education Building
University of Wisconsin - River Falls
River Falls, WI 54022

715.425.3520 (office) 715.425.3230 (department)
geoffrey.scheurman@uwrf.edu

From: Diane Bennett
Sent: Monday, November 28, 2016 1:36 PM
To: Geoffrey Scheurman
Cc: Ian Williams
Subject: Future Upper Division Teacher Education Course Offerings

Dear Geoff,

I am working on a program change proposal on behalf of the STEMteach MSE program. We were asked to provide a list of UWRF courses that would be allowable for completion of content area electives. (We realize that the suitability of each course depends on each student’s background, course enrollment requirements, and course availability.) I wonder if you could indicate below which of the following are likely future course offerings for your department.

THESE COURSES ARE OFFERED CONSISTENTLY AND REPRESENT THE MOST LIKELY POSSIBILITIES FOR FUTURE STEMTEACH CANDIDATES:

* TED 689 Special Topics in Teacher Ed
* TED 695 Contemporary Issues in Education
* TED 760 Methods of Research
* TED 789 Special Topics in Education
* TED 798 Independent Research
* TED 799 Thesis
THESE ARE REMNANTS FROM OLD PROGRAMS, BUT STILL OFFERED ON AS NEEDED BASIS FOR "OLD" CANDIDATES STILL IN THE PIPELINE. TO THAT END, THEY MIGHT BE USEFUL FOR A FUTURE STEMTEACH CANDIDATE:

TED 740 History, Philosophy, Multicultural Education
TED 747 Curriculum K-12
TED 750 Advanced Educational Psychology
TED 755 Social Issues in Education
TED 768 Curriculum of the Secondary School
TED 776 Comp Ed - Overseas Field Experience
** TED 780 Professional Development Practicum
TED 783 Supervising Field Experience

** This course was designed with STEMteach in mind, so we know it is a likely candidate.

THE FOLLOWING courses are part of our MSE program in Elementary Education. I doubt they'd be used by future STEMteachers, but they are relevant enough and offered consistently enough that we do occasionally find a "fit" for the appropriate candidate:

TED 701 Psychology of Teaching and Learning
TED 706 Historical, Philosophical, and Multicultural Foundations of Education

THE FOLLOWING COURSES ARE OFFERED THROUGH OUTREACH AND TAUGHT INCONSISTENTLY BY ADJUNCT FACULTY, TYPICALLY SERVING IN-SERVICE TEACHERS WHO NEED RECERTIFICATION CREDITS. SO NOT GREAT CHOICES, BUT YOU NEVER KNOW. WE CAN OCCASIONALLY USE THEM TO TAILOR A COURSE TO A SPECIFIC CONSTITUENCY:

TED 721 Introduction to Service Learning
TED 722 Service Learning Management and Curriculum
TED 723 Service-Learning Research/Evaluation/Assessment
TED 724 Service Learning through Reflective Practice
TED 725 Service-Learning Practicum
TED 730 Introduction to Community Education
TED 733 Administration of Community Education
TED 734 Extended Learning Administration
TED 736 Family Community School Partnerships
TED 737 Community Education Practicum

THIS SHOULD BE WHAT WE NEED.

GEOFF

Thank you,
Diane

Diane Bennett, Ph.D.
Director of Grants and Research
Appendix F. Communication with Department Chairs – Mathematics

Hi Diane,

I am copying Erick Hofacker as he is the Director of our Mathematics Graduate Program and may have additions/corrections to the information I am sharing.

These courses are offered on a three-year rotating basis which you can read about here.

- MATH 711 Geometry for Educators
- MATH 726 Statistics for Teachers
- MATH 736 Discrete Mathematics for Education
- MATH 751 Modern Algebra for Educators
- MATH 756 Probability for Educators
- MATH 766 Calculus for Educators

This course is offered Spring 2017 and I expect it will be offered at least once every three years.

- MATH 705 Integrating Emerging Technologies in the Teaching and Learning of Mathematics

This course is offered as MATH 436 every fall face-to-face and summers online. We could add MATH 636 students to the MATH 436 sections if there were demand. Note that at some time in the future, we expect to make changes to our Math Secondary Education Major that include removing MATH 436 from our regular offerings. At this point MATH 636 would no longer be an option.

- MATH 636 History of Mathematics

I expect that these courses will not be offered in the foreseeable future.

- MATH 689 Special Topics in Mathematics
- MATH 789 Special Topics in Mathematics

These courses are offered this spring, but I don’t see how they would support the STEMteach program. They depend on the student finding an advisor willing to direct the independent study/research.

- MATH 798 Independent Research
- MATH 799 Thesis

I hope this helps!

Kathy

From: Diane Bennett
Sent: Monday, November 28, 2016 1:34 PM
To: Kathy Tomlinson
Cc: Ian Williams
Subject: Future Upper Division Mathematics Course Offerings
Dear Kathy,

I am working on a program change proposal on behalf of the STEMteach MSE program. We were asked to provide a list of UWRF courses that would be allowable for completion of content area electives. (We realize that the suitability of each course depends on each student’s background, course enrollment requirements, and course availability.) I wonder if you could indicate below which of the following are likely future course offerings for your department.

MATH 636 History of Mathematics  
MATH 689 Special Topics in Mathematics  
MATH 705 Integrating Emerging Technologies in the Teaching and Learning of Mathematics  
MATH 711 Geometry for Educators  
MATH 726 Statistics for Teachers  
MATH 736 Discrete Mathematics for Education  
MATH 751 Modern Algebra for Educators  
MATH 756 Probability for Educators  
MATH 766 Calculus for Educators  
MATH 789 Special Topics in Mathematics  
MATH 798 Independent Research  
MATH 799 Thesis  

Thank you,

Diane

Diane Bennett, Ph.D.  
Director of Grants and Research  
University of Wisconsin – River Falls  
diane.bennett@uwrf.edu  
715-425-3195
Appendix G. Communication with Department Chairs – Physics

Hi Diane:

Phys 789 and 789 will be offered on a regular basis as need arises.

Phys 700 through 723 should be listed as occasional. At present, we do not have a planned rotation for offering these courses.

The other courses are not likely to be offered.

Let me know if you have questions.

Thanks,

Jim

Jim Madsen
Professor, Chair
Physics Department
UWRF
410 South Third Street
River Falls, WI 54022

Associate Director for Education and Outreach
IceCube Collaboration

715-425-4390 Office
715-425-0652 FAX

From: Diane Bennett
Sent: Monday, November 28, 2016 1:35 PM
To: James Madsen <james.madsen@uwrf.edu>
Cc: Ian Williams <ian.williams@uwrf.edu>
Subject: Future Upper Division Physics Course Offerings

Dear Jim,

I am working on a program change proposal on behalf of the STEMteach MSE program. We were asked to provide a list of UWRF courses that would be allowable for completion of content area electives. (We realize that the suitability of each course depends on each student’s background, course enrollment requirements, and course availability.) I wonder if you could indicate below which of the following are likely future course offerings for your department.

PHYS 589 Special Topics in Physics
PHYS 604 Aerospace Workshop
PHYS 689 Special Topics in Physics
PHYS 700 Mechanics for Secondary School Teachers
PHYS 701 Electricity and Magnetism for Secondary School Teachers
PHYS 704 Modern Physics for Secondary School Teachers
PHYS 705 Thermodynamics in Secondary School
PHYS 717 Astronomy SST
PHYS 718 Astrophysics for Secondary School Teachers
PHYS 720 Optics SST
PHYS 721 Acoustics for SST
PHYS 723 Laser Physics for Secondary School Teachers
PHYS 789 Special Topics in Physics
PHYS 793 Final Research Paper
PHYS 798 Independent Research
PHYS 799 Thesis

Thank you,

Diane

Diane Bennett, Ph.D.
Director of Grants and Research
University of Wisconsin – River Falls
diane.bennett@uwrf.edu
715-425-3195
Appendix H. Communication with Department Chairs – Plant and Earth Science

HI Diane,

Of the ESM courses listed, only ESM 500 is taught on a regular basis. It could certainly be included.

Of the GEOL courses most are not taught anymore. The following, though not taught regularly, could be included as they could be handled on an individual basis:

- GEOL 589 Special Topics in Geology
- GEOL 689 Special Topics in Geology
- GEOL 700 Field Hydrology and Geomorphology for Teachers
- GEOL 705 Field Geology/Teachers
- GEOL 710 Planetary Geology
- GEOL 789 Special Topics in Geology
- GEOL 798 Independent Research

Thanks,

Don

From: Diane Bennett
Sent: Monday, November 28, 2016 1:32 PM
To: Donavon Taylor <donavon.h.taylor@uwrf.edu>
Cc: Ian Williams <ian.williams@uwrf.edu>
Subject: Future Upper Division Plant and Earth Science Course Offerings

Dear Donavon,

I am working on a program change proposal on behalf of the STEMteach MSE program. We were asked to provide a list of UWRF courses that would be allowable for completion of content area electives. (We realize that the suitability of each course depends on each student’s background, course enrollment requirements, and course availability.) I wonder if you could indicate below which of the following are likely future course offerings for your department.

- ESM 500 Environmental Education
- ESM 533 Remote Sensing of Natural Resources
- ESM 589 Special Topics in Resource Management
- ESM 593 Comprehensive Planning
- ESM 620 Wildlife Recreation, Nature Tourism & Sustainability-Based Systems
- ESM 635 Advanced Land Use Planning & Design
- ESM 636 Fall Wildland Education Workshop
- ESM 645 Wildlife & Visitor Management in Nature Tourism
ESM 689 Special Topics in Resource Management
ESM 707 Sustainable Community Development
ESM 709 History and Theories of Sustainability
ESM 711 Site Planning for Sustainable Communities
ESM 715 Community Engagement for Sustainability
ESM 720 Sustainability-Focused Education Programming
ESM 735 Land Use Planning for Sustainable Communities
ESM 750 Wildlife Recreation & Nature Tourism Graduate Capstone
ESM 789 Special Topics in Resource Management
ESM 798 Independent Research

GEOL 530 Meteorology
GEOL 572 Southwest Regional Field Trip
GEOL 579 Geology & Public Gardens of Southern England
GEOL 589 Special Topics in Geology
GEOL 617 Hazardous Waste Operation & Emergency Response
GEOL 650 Paleontology
GEOL 689 Special Topics in Geology
GEOL 700 Field Hydrology and Geomorphology for Teachers
GEOL 703 Minerals Rock
GEOL 704 Atmosphere & Surface on Earth
GEOL 705 Field Geology/Teachers
GEOL 710 Planetary Geology
GEOL 789 Special Topics in Geology
GEOL 798 Independent Research

Thank you,

Diane

Diane Bennett, Ph.D.
Director of Grants and Research
University of Wisconsin – River Falls
diane.bennett@uwrf.edu
715-425-3195
Appendix I. Communication with Department Chairs – Biology

Dear Dr. Bennett,

Per your inquiry, we are capable of teaching the following graduate courses at this time. If there are any considerations to remove any of the courses in the future, I will let you know ahead of time.

Regards,
Fred

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BIOL 500 Environmental Education
BIOL 514 Plant Pathology
BIOL 520 Plant Structure & Function
BIOL 523 Parasitology
BIOL 524 Microbiology
BIOL 544 Wildlife Biology
BIOL 553 Histology
BIOL 589 Special Topics in Biology
BIOL 644 Ornithology
BIOL 645 Wildlife & Visitor Management in Nature Tourism
BIOL 651 Molecular Biology
BIOL 663 Animal Cell Culture
BIOL 689 Special Topics in Biology
BIOL 700 Cardiac Anatomy and Physiology
BIOL 701 Neuroscience
BIOL 702 Emrg Infct Diseases
BIOL 703 Field Botany for Teachers
BIOL 707 Biotechnology Workshop for Teachers
BIOL 710 Medical Pharmacology
BIOL 721 Bioinformatics for Teachers
BIOL 722 Evolution for Teachers
BIOL 789 Special Topics in Biology
BIOL 798 Independent Research
BIOL 799 Thesis
Appendix J. Communication with Outreach and Continuing Education

From: Pamela Bowen
Sent: Tuesday, December 20, 2016 9:37 AM
To: Diane Bennett <diane.bennett@uwrf.edu>; Geoffrey Scheurman <geoffrey.scheurman@uwrf.edu>
Subject: RE: STEMteach program change document

A note about the classes listed below – although not deactivated these courses have not been offered since Stan Potts left several years ago (6+). The classes were part of two online certificate programs that we had and we don’t plan to offer them again through outreach nor do we have any instructors. What is listed in the documents is not incorrect, however I don’t envision a time/place that we would ever offer them again.

THE FOLLOWING COURSES ARE OFFERED THROUGH OUTREACH AND TAUGHT INCONSISTENTLY BY ADJUNCT FACULTY, TYPICALLY SERVING IN-SERVICE TEACHERS WHO NEED RECERTIFICATION CREDITS. SO NOT GREAT CHOICES, BUT YOU NEVER KNOW. WE CAN OCCASIONALLY USE THEM TO TAILOR A COURSE TO A SPECIFIC CONSTITUENCY:

TED 721 Introduction to Service Learning
TED 722 Service Learning Management and Curriculum
TED 723 Service-Learning Research/Evaluation/Assessment
TED 724 Service Learning through Reflective Practice
TED 725 Service-Learning Practicum
TED 730 Introduction to Community Education
TED 733 Administration of Community Education
TED 734 Extended Learning Administration
TED 736 Family Community School Partnerships
TED 737 Community Education Practicum