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Revised 4/22/2009

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UNDERGRADUATE CURRICULUM PROPOSAL COVER SHEET

RECORDS

Title of Proposal - Must begin with Department Abbreviation:

UTeaChattanooga Post-Baccalaureate Certificates Proposal

Check One: Full Proposal or Information Item

Effective Date for Curricular Offering: Fall, 2012

FROM: UTeaChattanooga: Drs. Stephen Kuhn and Sandy Watson, CANX 111, 425-2552, stephen-kuhn@utc.edu, sandy-watson@utc.edu (proposal originator: include spokesperson's name, department, office number, telephone, e-mail)

Does this require new resources from the originating department or other department? no Please include an explanation if yes.

Faculty of the originating department approved this proposal on 10-11-11 (date), by a vote of 4 aye votes; 0 nay votes; 0 abstentions; 0 eligible voting members absent.

The following have examined this proposal:

Dept Head/Director: Stephen Kuhn/Sandy Watson (Printed name), [Signatures] (Signature, date), [Checkmarks] (Approve Neutral Disapprove*)

College Curriculum Committee Date: _____ Vote: _____ Signature of Chair: _____

Spokespersons for Affected Departments:

Table with 4 columns: Printed Name, Department, Signature, Date, Approve, Neutral, Disapprove*

Dean/Director: H. Burbenn (Printed name), [Signature] (Signature, date), [Checkmark] (Approve Neutral Disapprove*)

University Registrar: Linda Orth (Printed name), [Signature] (Signature, date), [Checkmark] (Comments)

Provost/Representative: _____ (Printed name), _____ (Signature, date), _____ (Approve Neutral Disapprove*)

Lab/studio fee requested: Provost: Phil Oldham (Printed name), [Signature] (Signature, date), [Checkmark] (Approve Disapprove*)

*Those who disapprove may attach an explanation

Table with 2 columns: Curriculum Committee, Faculty Senate. Rows include: ACTIONS on this proposal, Date the proposal was considered, Vote of the body, Accepted as information item, Approved as submitted, Approved with amendments, Signature of Chair.

12.014.06

A Proposal for UTeaChattanooga Post-Baccalaureate Certificates

Department: UTeaChattanooga
College of Arts and Sciences
University of Tennessee at Chattanooga

Dr. Stephen Kuhn, Co-Director
Dr. Sandy Watson, Co-Director

Abstract

To meet the educational needs of a changing society, whose members have varied and emerging educational needs, and to enhance or supplement the current UTeaChattanooga degree program, we propose the development of a UTeaChattanooga post-baccalaureate credit certificate program. A UTeaChattanooga post-baccalaureate program will allow students who already have at least a STEM (Science, Technology, Engineering and Mathematics) baccalaureate degree the opportunity to obtain teacher licensure by enrolling in, and successfully completing, the UTSM (UTeaChattanooga Science and Mathematics) course sequence (23 credit hours). The UTeaChattanooga post-baccalaureate certificate will be composed of existing courses taught by existing faculty. This proposal presents the certificates.

Proposed Change

UTeaChattanooga proposes the addition of five post-baccalaureate certificates, (Post-Baccalaureate UTeach Certificate: Biology; Post-Baccalaureate UTeach Certificate: Chemistry; Post-Baccalaureate UTeach Certificate : Physics; Post-Baccalaureate UTeach Certificate: Geology; and Post-Baccalaureate UTeach Certificate: Mathematics). These certificates are open to students who possess a bachelor's or master's degree in one of the following STEM (Science, Technology, Engineering, and Mathematics) fields: Biology, Chemistry, Physics, Geology, Mathematics, Engineering, and Computer Science. We request certificates in the five of these seven areas in which teacher certification is granted by the state of Tennessee.

Proposed Catalog Description

Post-Baccalaureate Certificate Program

The UTeaChattanooga Department offers five post-baccalaureate certificates intended to provide individuals with at least Bachelors degrees in STEM areas (Biology, Chemistry, Physics, Geology, Computer Science, Mathematics, and Engineering) pedagogical training for licensure to teach secondary school mathematics or science.

Admission to UTeaChattanooga for Post-baccalaureate students

Students wishing to pursue a post-baccalaureate certificate and secondary teacher licensure in mathematics or science through the UTeaChattanooga program must:

1. Have an undergraduate or graduate degree with a major, or equivalent, in one of the following content areas: Biology, Chemistry, Geology, Physics, Mathematics, Engineering, or Computer Science.
2. Be formally admitted to UTC.
3. Have a minimum GPA of 2.5 overall and in the major courses. All undergraduate and graduate course work is considered when determining the GPAs.
4. Submit a Post-Baccalaureate Curriculum Review Request (available on the UTeaChattanooga web site, www.utc.edu/UTeaChattanooga) and have an official copy of his/her undergraduate and graduate transcripts mailed to:

UTeaChattanooga
Drs. Stephen Kuhn and Sandy Watson
Dept. 7156
110 Collins Street Annex
Chattanooga, TN 37403-2598

5. Have an ACT composite score of 22 or better or a score of 1020 or better on the SAT. If the undergraduate applicant's ACT or SAT score is below 22 or 1020 respectively, the applicant must take the Praxis I Exam. Post-baccalaureate students who are enrolled with the Graduate School **MUST** take the **MAT** (minimum score of 372) or the **GRE** (minimum 900/4.0 (writing)) instead.
6. Complete the background check authorization form (available on the UTeaChattanooga web site, www.utc.edu/UTeaChattanooga).
7. Complete the background check through L-1 Identity Solutions (see the UTeaChattanooga web site, www.utc.edu/UTeaChattanooga)
8. Formally apply to UTeaChattanooga (undergraduates do not apply until after completing Step Two, graduate students must formally apply BEFORE starting Step One).
9. Successfully complete an essay entrance requirement.
10. Perform satisfactorily in an interview with UTeaChattanooga Co-Directors.
11. Provide an **accurate email address** for two people selected from Academic Advisors, Professor in Major Field, or Internship Supervisor (internship related to major field) to complete a Disposition Assessment online (available on the UTeaChattanooga web site, www.utc.edu/UTeaChattanooga).

Tennessee Licensure Requirements

To be eligible for a Tennessee teaching license, an individual must:

- Complete the appropriate UTSM professional education courses in the UTeaChattanooga program as listed below in this document with a minimum GPA of 2.5 overall and in the relevant content area.
- Pass the required Praxis II test(s) in the relevant content area and the Principles of Learning and Teaching test.

Continuation Requirements

Students in the UTeaChattanooga Post-Baccalaureate certificate program must maintain a 2.5 GPA overall, in all content major courses they are taking, and in all UTSM coursework.

Certificate in Teacher Licensure: UTeaChattanooga

Completion of a UTeaChattanooga Post-Baccalaureate certificate program requires completion of all of the following courses and one of the bachelors degrees described below as appropriate for the certificate desired

Course Requirements

UTSM 1010: Inquiry Approaches to Teaching Mathematics and Science.....	1
UTSM 1020: Inquiry Based Lesson Design in Mathematics and Science.....	1
UTSM 2010: Knowing and Learning.....	3
UTSM 2020: Classroom Interactions.....	3
UTSM 3010: Perspectives on Mathematics and Science.....	3
UTSM 3020: Research Methods in Science.....	3
UTSM 4010: Project-Based Instruction.....	3
UTSM 4020: Apprentice Teaching.....	6
TOTAL.....	23

Courses completed for the STEM degree used to help qualify for a UTeach post-baccalaureate certificate should include those on at least one of the following lists, which reflect the disciplinary requirements for undergraduate UTeach concentrations. Requests for substitutions or exceptions may be made to the UTeaChattanooga co-directors.

- For the Post-Baccalaureate UTeach Certificate: Biology**, completion of a bachelor's degree in Biology from a regionally accredited college or university and approval by the UTeaChattanooga co-directors.
- For the Post-Baccalaureate UTeach Certificate: Chemistry**, completion of a bachelor's degree in Chemistry from a regionally accredited college or university and approval by the UTeaChattanooga co-directors.

C. For the Post-Baccalaureate UTeach Certificate: Physics:

Either 1) completion of a bachelor's degree in Physics from a regionally accredited college or university, or

2) completion of a bachelor's degree in Engineering from a regionally accredited college or university, including the following courses or their equivalents:

MATH 2200: Elementary Linear Algebra

MATH 2450: Intro to Differential Equations

MATH 2550: Multivariable Calculus

PHYS 2300/2300L: Principles of Physics Mechanics and Heat, and lab

PHYS 2310/2310L: Principles of Physics Electricity and Magnetism, and lab

and 3) approval by the UTeaChattanooga co-directors.

D. For the Post-Baccalaureate UTeach Certificate : Mathematics:

Either 1) completion of a bachelor's degree in Mathematics from a regionally accredited college or university, including MATH 2300, Mathematical Models, Functions and Applications, or its equivalent.

or 2) completion of a bachelor's degree in Computer Science from a regionally accredited college or university, including the following courses or their equivalents

MATH1910/1911: Calculus I & lab

MATH1920/1921: Calculus II & lab

MATH 2030: Discrete Mathematics for Computer Science

MATH 2200: Elementary Linear Algebra

MATH 2300, Mathematical Models, Functions and Applications

MATH 3000: Foundations of Mathematics

MATH 3100: Applied Statistics

MATH 4010: Basic Concepts of Geometry

and 3) approval by the UTeaChattanooga co-directors

E. For the Post-Baccalaureate UTeach Certificate: Geology, a bachelor's degree in Geology from a regionally accredited college or university and approval by the UTeaChattanooga co-directors.

Rationale:

According to the Teacher Shortage Areas Nationwide Listing, 1990-91 thru 2010-11 (March 2010, U. S. Department of Education Office of Postsecondary Education) there are persistent shortages of Secondary Mathematics and Science teachers, especially Physical Science teachers in almost all parts of the US. A primary goal of the UTeaChattanooga program is to help satisfy this need for additional qualified teachers. Unlike some content areas, the number of teachers produced each year in math and science is far less than is

needed to cover losses of teachers in these fields due to pre-retirement turnover (with as many as 40% of new teachers leaving the profession if they lack mentoring or induction programs), and also falls far short of addressing losses due to retirement.

The University of Tennessee Center for Business and Economic Research, the Tennessee Department of Education and the Tennessee Higher Education Commission jointly published a study, Supply and Demand for Teachers in Tennessee, (December, 2009) in which they predicted that there will be a demand of 12,518 high school teachers (approximately 17% in mathematics and 13% in science) but a likely supply of only 7,752, leaving a shortage of 4,766 high school teachers in Tennessee by 2014. If the percentages of the shortages of mathematics and science teachers in Tennessee are at least as large the percentages of the overall demand in the U.S., Tennessee is looking at a shortage of at least 810 mathematics and 620 science teachers by 2014.

Since the inception of the UTeaChattanooga program approximately one year ago, we have had many inquiries from interested individuals with STEM degrees about the possibility of the addition of a post-baccalaureate certificate program. The high number of inquiries and the dire need for more and better qualified secondary mathematics and science teachers in the state of TN and across the U.S. prompted us to move forward with this post-baccalaureate certificate proposal.

Effects on Other Programs

The UTeaChattanooga post-baccalaureate program should have no impact on other programs. The School of Education no longer houses a program to license secondary mathematics and science teachers, as that program was phased out for entering freshmen when UTeaChattanooga began.

Impact

The UTeaChattanooga post-baccalaureate program is expected to increase the enrollment in the UTeaChattanooga program by attracting existing graduates with STEM degrees, who are not interested in a full masters degree (or who already have a masters degree) but also desire to seek additional training toward licensure to teach in secondary mathematics, biology, physics, chemistry, or earth science. The program is expected to increase the number of secondary mathematics and science teachers who are clearly knowledgeable in their subject areas (by virtue of the disciplinary degrees they possess entering the program) who meet the state certification requirements for teaching in their areas of expertise. These new teachers will help address the shortages cited in the rationale above.

These additional students are not expected to introduce a significant advisement burden, as they will only be advised in their UTeach coursework and there are enough faculty, staff, and administrators in UTeaChattanooga to routinely advise undergraduate UTeaChattanooga students and any additional post-baccalaureate students.

The impact on teaching loads would be minimal and manageable. No new courses would be developed for the Post-baccalaureate program. All UTeaChattanooga courses will be in place by 2013. Post-baccalaureate UTeaChattanooga students will be able to complete the program in one year if they follow the entry points as outlined in the following tables, though they may, of course, progress through the program at a slower pace if they desire:

Option One

Semester One	Semester Two
Step One/Two Combo Knowing & Learning Project Based Instruction Classroom Interactions Functions & Modeling (Math only)	Apprentice Teaching Research Methods Perspectives

Option Two

Semester One	Summer Semester	Semester Two
Step One/Two Combo Classroom Interactions Project Based Instruction	Knowing & Learning Functions & Modeling (for Mathematics only)	Apprentice Teaching Research Methods Perspectives