

Status: PENDING

PROGRAM REQUEST
Science and Mathematics Education

Last Updated: Zircher, Andrew Paul
08/17/2011

Fiscal Unit/Academic Org School of Teaching & Learning - D1275
Administering College/Academic Group Education & Human Ecology
Co-administering College/Academic Group
Semester Conversion Designation New Program/Plan
Proposed Program/Plan Name Science and Mathematics Education
Type of Program/Plan Undergraduate bachelors degree program or major
Program/Plan Code Abbreviation
Proposed Degree Title Bachelor of Science in Education

Credit Hour Explanation

Program credit hour requirements		A) Number of credit hours in current program (Quarter credit hours)	B) Calculated result for 2/3rds of current (Semester credit hours)	C) Number of credit hours required for proposed program (Semester credit hours)	D) Change in credit hours
Total minimum credit hours required for completion of program				142	
Required credit hours offered by the unit	Minimum			41	
	Maximum				
Required credit hours offered outside of the unit	Minimum			101	
	Maximum			114	
Required prerequisite credit hours not included above	Minimum				
	Maximum				

Program Learning Goals

Note: these are required for all undergraduate degree programs and majors now, and will be required for all graduate and professional degree programs in 2012. Nonetheless, all programs are encouraged to complete these now.

Program Learning Goals

- Learning Objectives for Science Education students

Through their coursework, students will develop knowledge of the following:

1. Multiple ways we organize our perceptions of the world and how systems organize the studies and knowledge of science.
- 2. Nature of scientific evidence and the use of models for explanation.
3. Measurement as a way of knowing and organizing observations of constancy and change.
4. Evolution of natural systems and factors that result in evolution or equilibrium.
- 5. Interrelationships of form, function, and behaviors in living and nonliving systems.

Learning Objectives for Mathematics Education students

Through their coursework, students will:

- 1. Know, understand, and apply the process of mathematical problem solving.
- 2. Reason, construct, and evaluate mathematical arguments and develop an appreciation for mathematical rigor and inquiry.
- 3. Communicate their mathematical thinking orally and in writing to peers, faculty, and others.
- 4. Recognize, use, and make connections between and among mathematical ideas and in contexts outside mathematics to build mathematical understanding.
- 5. Use varied representations of mathematical ideas to support and deepen students' mathematical understanding.
- 6. Embrace technology as an essential tool for teaching and learning mathematics.
- 7. Support a positive disposition toward mathematical processes and mathematical learning.
- 8. Possess a deep understanding of how students learn mathematics and of the pedagogical knowledge specific to mathematics teaching and learning.

Assessment

Assessment plan includes student learning goals, how those goals are evaluated, and how the information collected is used to improve student learning. An assessment plan is required for undergraduate majors and degrees. Graduate and professional degree programs are encouraged to complete this now, but will not be required to do so until 2012.

Is this a degree program (undergraduate, graduate, or professional) or major proposal? Yes

Does the degree program or major have an assessment plan on file with the university Office of Academic Affairs? No

DIRECT MEASURES (means of assessment that measure performance directly, are authentic and minimize mitigating or intervening factors)

Standardized tests

- National standardized examination
- Certification or licensure examinations

Classroom assignments

- Embedded testing (i.e. specific questions in homework or exams that allow faculty to assess students' attainments of a specific learning goal)
- Other classroom assessment methods (e.g., writing assignments, oral presentations, oral exams)

Evaluation of a body of work produced by the student

- Practicum, internship or research evaluation of student work
- Portfolio evaluation of student work
- Senior thesis or major project

INDIRECT MEASURES (means of assessment that are related to direct measures but are steps removed from those measures)

Surveys and Interviews

- Student evaluation of instruction

Additional types of indirect evidence

- Job or post-baccalaureate education placement
- External program review
- Curriculum or syllabus review
- Comparison or benchmarking

USE OF DATA (how the program uses or will use the evaluation data to make evidence-based improvements to the program periodically)

- Meet with students directly to discuss their performance
- Analyze and discuss trends with the unit's faculty
- Analyze and report to college/school
- Analyze and report to accrediting organization
- Make improvements in curricular requirements (e.g., add, subtract courses)
- Make improvements in course content
- Make improvements in course delivery and learning activities within courses
- Make improvements in learning facilities, laboratories, and/or equipment
- Periodically confirm that current curriculum and courses are facilitating student attainment of program goals
- Benchmark against best programs in the field

Program Specializations/Sub-Plans

If you do not specify a program specialization/sub-plan it will be assumed you are submitting this program for all program specializations/sub-plans.

Program Specialization/Sub-Plan Name	Chemistry
Program Specialization/Sub-Plan Goals	•
Program Specialization/Sub-Plan Name	Life Sciences
Program Specialization/Sub-Plan Goals	•
Program Specialization/Sub-Plan Name	Earth Sciences
Program Specialization/Sub-Plan Goals	•
Program Specialization/Sub-Plan Name	Mathematics
Program Specialization/Sub-Plan Goals	•
Program Specialization/Sub-Plan Name	Physics
Program Specialization/Sub-Plan Goals	•

Pre-Major

Does this Program have a Pre-Major? Yes

In order to effectively advise and ensure that students who intend to seek licensure are high quality, the School of Teaching and Learning requests the establishment of a pre-major for its proposed B.S.E.d majors that lead to licensure. The Pre-major establishes criteria for student admission to the major, as well as reduces costs to the students and the university (reduction in back-ground checks needed for entering the classroom as a student teacher, costs for supervision, and limiting the number of professional development credits needed for Columbus City Schools are just a few examples).

Any student, upon admission to the university, may declare the Education pre-major. From there, they will be closely advised through the completion of their General Education and teaching content coursework. When a student has completed the majority of this work (expected to be approximately the beginning of Rank 3 status), the student may then apply to the appropriate major licensure program. Applications will consist of the completion of content exams (currently hosted by Praxis), competitive GPA with a minimum of 2.75 , and a statement of intent that will be reviewed by a committee consisting of faculty, program

Status: PENDING

PROGRAM REQUEST
Science and Mathematics Education

Last Updated: Zircher,Andrew Paul
08/17/2011

managers and academic advisors from the licensure area. Admission will begin on a rolling basis but a more specific deadline may be established once the number of applications received each year has stabilized and become predictable.

Students transferring to the university would be advised into the pre-major or apply directly to the major depending upon completion of pre-major requirements.

Attachments

- STEM Conversion Letter.pdf
(Letter from Program-offering Unit. Owner: Mercerhill, Jessica Leigh)
- STEM BSEd Concurrence from ASC.pdf
(Support/Concurrence Letters. Owner: Mercerhill, Jessica Leigh)
- 081511 BSED STEM Revised.pdf: Revised Proposal
(Program Proposal. Owner: Zircher, Andrew Paul)
- EHE Dean's Approval - Semester Conv - Teaching Learning - 060911.pdf: College Support
(Letter from the College to OAA. Owner: Zircher, Andrew Paul)

Comments

- Sent back for revision per the discussion in the CAA meeting on 7/28. *(by Soave, Melissa A on 07/28/2011 03:46 PM)*

Workflow Information

Status	User(s)	Date/Time	Step
Submitted	Mercerhill, Jessica Leigh	05/25/2011 03:55 PM	Submitted for Approval
Approved	Clark, Caroline Taylor	05/26/2011 12:53 PM	Unit Approval
Approved	Zircher, Andrew Paul	06/15/2011 10:27 AM	College Approval
Revision Requested	Soave, Melissa A	07/28/2011 03:46 PM	CAA Approval
Submitted	Mercerhill, Jessica Leigh	08/02/2011 04:06 PM	Submitted for Approval
Approved	Clark, Caroline Taylor	08/02/2011 04:32 PM	Unit Approval
Revision Requested	Zircher, Andrew Paul	08/15/2011 04:48 PM	College Approval
Submitted	Mercerhill, Jessica Leigh	08/17/2011 12:23 PM	Submitted for Approval
Approved	Clark, Caroline Taylor	08/17/2011 12:55 PM	Unit Approval
Approved	Zircher, Andrew Paul	08/17/2011 01:05 PM	College Approval
Pending Approval	Cameron, Erin Marie Soave, Melissa A	08/17/2011 01:05 PM	CAA Approval



Office of Academic Affairs
172 Arps Hall, 1945 N. High Street
614 688-4571

Date: June 9, 2011

To: Randy Smith, Vice Provost for Academic Programs
Elliot Slotnick, Associate Dean, Graduate School

From: Jackie Blount, Associate Dean, EHE Academic Affairs

RE: Semester Conversion Package for School of Teaching & Learning

I am pleased to present the package of semester conversion materials for the School of Teaching & Learning. In what follows, I will outline unique college and school contexts that have shaped this package. I will include tables summarizing constituent programs/courses and describe any other pertinent considerations. Finally, you will find Dean's level approval.

College Contexts

The College of Education and Human Ecology was formed in 2006 by merging two colleges (Human Ecology and Education). Curriculum across the new college, however, has remained relatively unchanged. Given this situation, we view the semester conversion process as a fresh opportunity to deepen the merger by building curricular collaborations among our units. We also wish to rethink our pre-existing programs and find ways to make them stronger, more coherent, and streamlined.

To these ends, we have asked faculty in our units to purge their curricula of little-used or less-than-relevant courses. We have challenged faculty to reach across unit lines to forge curricular collaborations by creating new degrees, interdisciplinary specializations, or co-taught courses. We are re-instituting a number of undergraduate teacher preparation programs (B.S.Ed.), each of which draws from courses in units around our college as well as across the university. We have encouraged five of our six units to address findings of the [2008 OSU Doctoral Program Assessment and Plan](#) by strengthening their Ph.D. programs and making them more coherent. They have responded by: 1) defining their Ph.D. programs in alignment with their units -- rather than with their pre-merger college (i.e., Ph.D. in Consumer Science rather than Ph.D. in Human Ecology); and 2) creating true cores for their Ph.D. programs if they did not previously exist. Additionally, an Ed.D. degree in Educational Leadership is being proposed to address the need of school administrators to pursue advanced degrees geared for practitioners. With approval of the Ed.D. and also with recent B.O.R. approval of our other practitioner-oriented programs, an Ed.S. (Education Specialist) program in School Psychology and another in Teaching and Learning, fewer graduate students in the college will pursue Ph.D.s by default than in the past.

We believe that, taken together, these changes will greatly strengthen our programs and clarify our new college identity.

School Notes

Teaching & Learning (T&L) is one of five units in the college to change its Ph.D. program to align with school boundaries rather than those of its previous college. T&L faculty have proposed that the degree name change from “Ph.D. in Education” to “Ph.D. in Teaching & Learning.” The “Education” designation no longer makes sense because the college of that name has ceased to exist. Also, Ph.D. degrees from other units with the “Education” designation have very little in common with each other as there is no common core. However, with the proposed Ph.D. in Teaching & Learning, a two-course common core provides cohesiveness to the degree program that spans nine separate areas of study.

T&L also has been quite busy preparing to re-introduce a series of teacher preparation degree programs (B.S.Ed.). Though T&L offered B.S.Ed. degrees long ago, they essentially were suspended during the Holmes Model years when the school’s teacher preparation was a graduate-only undertaking. With recent changes in state legislation (HB1), T&L has responded by bringing its undergraduate teacher preparation programs back, but in updated forms. It is important to note that all of T&L’s proposed teacher education degrees and endorsement areas align with the standards of our national and state accrediting bodies, most notably the National Council for the Accreditation of Teacher Education (NCATE). Note: Endorsement areas are additional content areas that may be added to teaching licenses.

Summary Tables

Program	Extent of Change	Notes	Approval by EHE Curr. Committee	Approval by EHE College Council
Ph.D. in Teaching and Learning	New	Name changed to align with unit name. Otherwise, straight conversion. Includes a two-course common core.	Nov. 30, '10	Dec. 3, '10
Ed.S. Education: Teaching and Learning	Converted	Straight conversion.	June 1, '11	June 3, '11
M.A. Teaching and Learning	Converted	Straight conversion.	Nov. 30, '10	Dec. 3, '10
M.Ed.	Converted	Straight conversion.	Nov. 30, '10	Dec. 3, '10
Graduate Interdisciplinary Specialization in Applied Developmental Science in Education	New	Generated from EHE Curriculum Collaboration Seed Grant, '10. Coordinates Applied Developmental Science faculty in college.	Nov. 30, '10	Dec. 3, '10

Program	Extent of Change	Notes	Approval by EHE Curr. Committee	Approval by EHE College Council
B.S.Ed. in Integrated Language Arts/English Education	New	Part of larger commitment to re-instituting undergraduate teacher education programs across fields (undertaken in part in response to HB1).	Nov. 30, '10	Dec. 3, '10
B.S.Ed. in Foreign Language Education	New	Part of larger commitment to re-instituting undergraduate teacher education programs across fields (undertaken in part in response to HB1).	Nov. 30, '10	Dec. 3, '10
B.S.Ed. Middle Childhood Education	New	Part of larger commitment to re-instituting undergraduate teacher education programs across fields (undertaken in part in response to HB1).	Dec. 9, '10	Jan. 7, '11
B.S.Ed. Science and Mathematics Education	New	Part of larger commitment to re-instituting undergraduate teacher education programs across fields (undertaken in part in response to HB1).	June 1, '11	June 3, '11
B.S.Ed. Teaching English to Speakers of Other Languages	New	Part of larger commitment to re-instituting undergraduate teacher education programs across fields (undertaken in part in response to HB1).	June 1, '11	June 3, '11
B.S.Ed. Early Childhood Education	New	Part of larger commitment to re-instituting undergraduate teacher education programs across fields (undertaken in part in response to HB1).	June 1, '11	June 3, '11
Technology Education	Deactivated	Program no longer deemed viable as configured.		
Endorsement and ESL Programs (non-degree)	Converted	Package of endorsements programs that educators might add to their licenses. Endorsements meet state licensure requirements.		

Courses	Number	Extent of Change	Approval by EHE Curr. Committee	Approval by EHE College Council
New graduate courses	32	New	Nov. 19, '10	Dec. 3, '10
New undergraduate courses	6	New	Nov. 19, '10	Dec. 3, '10
Total new Courses	38			
Re-envisioned graduate courses	132	Re-envisioned	Nov. 19, '10	Dec. 3, '10
Re-envisioned undergraduate courses	75	Re-envisioned	Nov. 19, '10	Dec. 3, '10
Total re-envisioned courses	210			
Graduate courses	25	Converted	Nov. 19, '10	Dec. 3, '10
Undergraduate courses	26	Converted	Nov. 19, '10	Dec. 3, '10
Total converted courses	51			
Total number of all courses	299			

Unique Considerations

The Technology Education program in T&L is being deactivated. This is, in part, a response to the 2008 OSU Doctoral Program Assessment and Plan.

Many of the 32 new graduate courses that are being proposed are courses that have already been taught multiple times as group studies courses.

College Approval

I have carefully reviewed all semester conversion materials for the School of Teaching & Learning, having done so conjointly with the EHE Curriculum Committee. I also have discussed these materials with Dean Achterberg. This memo signifies Dean's level approval of the entire semester conversion package for the School of Teaching & Learning.



College of Education and Human Ecology

School of Teaching and Learning
333 Arps Hall
1945 North High Street
Columbus, OH 43210-1172

Phone (614) 292-1257
Fax (614) 292-7695

Dear Semester Conversion Committee,

Enclosed is our conversion documentation for the Bachelor of Science in Education: Science and Mathematics Education. This program is currently accompanied in the School of Teaching and Learning by the following programs:

Bachelor of Science in Education: Early and Middle Childhood Pre-Education
Master of Education
Specialist in Education
Doctor of Philosophy
Endorsement Programs:
Early Childhood Generalist Endorsement (Grades 4-5)
Middle Childhood Generalist Endorsement
TESOL Endorsement
Reading Endorsement
P-6 Mathematics Specialist Endorsement
English as a Second Language Curriculum:
American Language Programs
Composition
Spoken English

As part of the conversion process, we are proposing the following undergraduate majors:

Bachelor of Science in Education: English Education
Bachelor of Science in Education: Foreign Language Education
Bachelor of Science in Education: Middle Childhood Education
Bachelor of Science in Education: Science and Mathematics Education
Bachelor of Science in Education: Teaching English to Speakers of Other Languages
Bachelor of Science in Education: Early Childhood Education

The Doctor of Philosophy in Teaching and Learning is the same program that it was under the previous umbrella of Ph.D. in Education. In order to more explicitly demonstrate the unique core requirement for the Teaching and Learning program, we are requesting a new program name.

The addition of this program and these majors bodes to have a positive fiscal impact on the School of Teaching & Learning and for EHE. We predict that over 1,000 university undergraduates will select the Pre-Education major and, subsequently enter the B.S. Ed programs listed above. Moreover, the current M.Ed. programs are predicted to maintain robust enrollment patterns of 30-50 students annually per program area. As part of these new program proposals, several courses have been submitted as GECs, which should also positively impact the fiscal profile of T&L and EHE. B.S. Ed and M.Ed. programs have been designed to allow for overlapping courses, particularly in the methods and field-based components, which will allow for fully enrolled courses that maintain pedagogical integrity. Likewise, the Ed.S. program overlaps with the M.A. and Ph.D. programs in ways that are fiscally and pedagogically sensible.

In order to plan, prepare, and endorse semester conversion materials, the School of Teaching and Learning formed faculty groups to complete the conversion work. It was the decision of the School to trust the individual faculty groups to make decisions best fitting their curricular needs. Each group focused on the curriculum taught by that faculty group, and included considerable discussion of how best to move forward under semesters. Faculty from multiple areas participated in more than one group, and any faculty member with an interest or investment in an area was allowed input. Across winter and spring 2010 quarters, these faculty groups met to engage in intense, valuable discussions, working to accommodate externally imposed expectations that accompany various licensure programs and to develop curricula that reflect the values and expertise of the T&L faculty. Faculty also worked, in good faith, to cut old courses, develop new ones, and merge others in order to have a robust set of programs and courses that truly reflect the best of what T&L has to offer students.

Since our licensure and endorsement areas are restricted by accreditation and state requirements, program conversions have been fairly direct with some innovations taking place at the course level. Likewise, since the M.A. and Ph.D. programs had just undergone major revision a few years ago, faculty decided to make a direct conversion of these as well; however the Ph.D. is being renamed to Ph.D. in Teaching and Learning to reflect the difference in curriculum from the other Schools in the College. The Education Specialist degree was approved this Spring, so it too is undergoing a direct conversion. Once faculty completed their work, the Director of the School then reviewed these proposals to be sure they were in alignment with conversion requirements and to address overarching School needs. Faculty endorsed this approach at a T&L faculty meeting and approved the semester conversion materials being forwarded to the Graduate Studies Committee for final vetting and forwarding to the EHE Semester Conversion Committee.

All new program proposals and courses were vetted by the T&L Graduate Studies Committee. Feedback from the committee was incorporated before approval, and the proposals being submitted here reflect the outcome.

As School Director, I ask that you approve this program for implementation in 2012 and will be happy to answer any questions that may arise.

Sincerely,



Rebecca Kantor
Director, School of Teaching and Learning

May 25, 2011

Dear Education and Human Ecology College Curriculum Committee members,

With the passage of HB 1, the state of Ohio ushered in a period of reform in teacher education. One of the major paradigm shifts in this bill is the introduction of a “residency” period that follows the teacher preparation program and accompanies the first few years after hiring. During the residency, the university and schools share the responsibility to support the entry of the novice teacher into the teaching profession.

The BSED Science and Mathematics Education described in this proposal is intended to provide a new licensure program in addition to the Master’s level (M.Ed) licensure program currently offered by the School of Teaching in Learning. The license is built upon the standards and competencies deemed critical to the specialized professional association that guides the field. The program described in this proposal aligns completely with these standards and competencies.

The School of Teaching and Learning Director and faculty will be researching and examining all aspects of the implementation and delivery of the combined BSED and M.Ed pathways to licensure from fiscal perspectives. We plan to reconceive supervision, management, teaching and student services, including advising, in a more integrated and efficient manner. Currently, for example, our doctoral students provide most of the supervision. In the semester planning, we envision moving to a model where doctoral students provide some UG instruction and some supervision (perhaps for a year for those who are truly interested in teacher education). Program Managers who currently manage placements and the administrative aspects of the program for a .6 FTE and teach courses if they are a 1.0 FTE appointment, will likely teach fewer courses but serve as advisors for all UG and M.Ed students in their licensure program. In addition, Faculty instructional resources will shift from pedagogical oversight of the M.Ed and M.Ed teaching to pedagogical leadership of both BSED and M.Ed but teach only in the M.Ed except on regional campuses. We will also reconceptualize supervision. We will examine models of early field experiences that involve several students in one classroom. Technology will provide a valuable tool for reducing the number of site visits that have to occur. Cooperating teachers will take on new roles in supervision and coaching. In Sum, we will find models and options over the next two years to meet the requirement that the new BSED programs be fiscally sustainable – i.e., they will at least break even within three years.

I look forward to receiving your feedback and would be happy to answer any questions that arise in the review of this proposal.

Sincerely,

Rebecca Kantor
Director, School of Teaching and Learning

Program Rationale:

The major proposed here is intended to provide students with preparation to teach Science or Mathematics at the secondary level (Grades 7 - 12). The components of this major have been designed to meet state and national standards, Ohio licensure requirements, and the Ohio State University requirements in four years with no additional coursework. The program features coursework intended to produce teachers with strong content knowledge background as well as pedagogical knowledge to prepare high quality teachers. The opportunity for students to initiate their pedagogical study while still completing their content coursework provides rich opportunities for the development of pedagogical content knowledge. The BSED adds flexibility to our current programs by providing a pathway for students who arrive at OSU with the intention to become secondary teachers to reach their educational goals in four years.

The large number of credit hours required in the program result from State requirements combined with national standards which we have to follow for accreditation purposes.

Courses within the School of Teaching and Learning:

EDUPL 5401- Adol Lrning & Devel in Schl Cntxts	3
EDUPL 5442- Tchng & Rding Acrss the Crrclm	3
EDUTL 5711 – Tch Mth Sec Sch	3
EDUTL 5712 – Fund Ideas Sch Math 1 Algebra	3
EDUTL 5741 – Learn Cog STEM	3
EDUTL 5742 – STEM Curr & Plan	3
EDUTL 5743 – Reach ALL Stud STEM	3
EDUTL 5744 – Tech Used in STEM	3
EDUTL 5745 - Intro Assess STEM	3
EDUTL 5746 – Assess STEM II: TPA	3
EDUTL 4189- Adv Fld Exp (Urban)	1
EDUTL 4189- Adv Fld Exp (Suburb)	1
EDUTL 5195 – Seminar	1
EDUTL 5191- Sprvsd Stdnt Tchng Internship	10
EDUTL 5195- Rflctve Seminar	2

Courses from other units:

EDUPAES 2189.01 – Fld Exp: Intro Exp in Schl System	3
EDUPL 4280 – Hist Modern Ed	3
EDUPL 5401- Adol Lrning & Devel in Schl Cntxts	3

Bachelor of Science in Education Science and Mathematics Education

What are the requirements for completion of Chemistry Education?

GENERAL EDUCATION: 52-54 Hours

Educating students to solve problems; to think critically, logically, scientifically, and creatively; and to be engaged and responsible citizens

WRITING: 6 Hours

English 1110.01, 1110.02, or 1110.03 ____

Any 2367 from EHE GE List ____

MATH: 5-7 Hours

Placement 2 or better or Math 1148 ____

MATH 1149 or 1150 ____

SCIENCE: 14 Hours

BIOL 1113 ____

CHEM 1210 ____ and CHEM 1220 ____

ARTS: 3 Hours
From EHE GE List ____

LITERATURE: 3 Hours
From EHE GE List ____

HISTORICAL STUDY: 3 Hours
From EHE GE List ____

Cultures & Ideas or Historical Study: 3 Hours
From EHE GE List ____

DATA ANALYSIS: 3 Hours
STAT 1350 or 1450 ____

SOCIAL SCIENCE: 6 Hours
Take two courses from EHE GE List from two subcategories ____ ____

OPEN OPTIONS: 6 Hours

Choose GE approved courses, service learning or study abroad ____ ____

SOCIAL DIVERSITY IN THE U.S.: 0 Hours

Select Second Writing, Literature, Historical Study, or Cultures & Ideas with Social Diversity in US focus - double-count permitted

GLOBAL STUDIES: 0 Hours (2 Courses)

Select Literature, Arts, Historical Study, or Cultures & Ideas with global focus- double-count permitted

MAJOR COURSES: 91 Hours

PRE-MAJOR REQUIREMENTS Complete each course in this box- 51 Hours

EHE 1100- Intro to Edu & Hum Ecol Degree Planning- 1Hr ____
 EDU PAES 2189.01- Fld Exp: Intro Exp in Schl Sys- 3Hr ____
 EDU PAES 2891- Sem in Hlping Rltnshps- 2Hr ____
 EDU PL 4280- Hist Modern Education- 3Hr ____
 EDU PL 5401- Adol Lrning & Devel in Schl Cntxts- 3Hr ____

EARTHSCI 1110- Planet Earth- 4Hr ____
 BIOCHEM 4511- Intro Biochem- 4Hr ____
 CHEM 2210- Quant Chem Alnys- 5Hr ____
 CHEM 2510- Organic Chem 1- 4Hr ____
 CHEM 2520- Organic Chem 1 Lab- 2Hr ____

MATH 1151- Calculus 1- 5Hr ____
 CHEM 2540- Organic Chem 2- 4Hr ____
 CHEM 2550- Organic Chem 2 Lab- 2Hr ____
 PHYSICS 1250- Mech, Thermo, Waves- 5Hr ____
 PHYSICS 2300- Particles & Waves

Students should consult their academic advisor as they near completion of the above requirements to discuss the application process for the major. A minimum GPA of 2.75 in the above coursework is required for admission to the major. Please note: major admission is competitive and meeting the minimum requirements does not guarantee admission.

Complete each course in this box- 41 credit hours

EDU TL 5442- Tchng & Rding Acrss the Crriclm- 3Hr ____
 EDU TL 5721- STEM Methods I- 3Hr ____
 EDU TL 5722- STEM Methods II- 3Hr ____
 EDU TL 5741- Learn Cog STEM- 3Hr ____
 EDU TL 5742- STEM Curr & Plan- 3Hr ____

EDU TL 5743- Reach All Stdnts in STEM- 3Hr ____
 EDU TL 5744- Tech Used in STEM- 3Hr ____
 EDU TL 5745- Intro Assess in STEM- 3Hr ____
 EDU TL 5746- Assess STEM II: TPA- 3Hr ____
 EDU TL 5195- Seminar- 2Hr ____

EDU TL 4189- Adv Fld Exp- 1Hr ____
 EDU TL 4189- Adv Fld Exp- 1Hr ____
 EDU TL 5191- Sprvsd Stndt Tchng Internship- 10Hr ____

Minimum Total Hours: 143-145 Elective Hours: 0

SUGGESTED FOUR YEAR PLAN

Autumn First Year
CHEM 1210
MATH 1150
ENGLISH 1110.01
Art
EHE 1100

Spring First Year
CHEM 1220
MATH 1151
Literature
EDU PAES 2189.01
EDU PAES 2891

Autumn Second Year
PHYSICS 1250 (Opn Opt)
Second Writing
CHEM 2210
HDFS 2200 (Soc Sci)

Spring Second Year
PHYSICS 2300
CHEM 2510
CHEM 2540
ERTH SC 1110 (Opn Opt)
EDU PL 4280

Autumn Third Year
BIOLOGY 1113
CHEM 2520
CHEM 2550
EDU PL 5401
EDU TL 4005 (Soc Sci)
EDU TL 5442

Spring Third Year
BIOCHEM 4511
EDU TL 5741
EDU TL 5721
EDU TL 4189
EDU TL 5745
Cultures&Ideas/Hist

Autumn Fourth Year
EDU TL 5742
EDU TL 5743
EDU TL 5722
EDU TL 5744
EDU TL 5746
EDU TL 4189
History

Spring Fourth Year
EDU TL 5191
EDU TL 5195
STAT 1350

Hours: 17

Hours: 18

Hours: 16

Hours: 17

Hours: 19

Hours: 17

Hours: 19

Hours: 15

Creating Your Own Scheduling Plan

Step 1: Access your Degree Audit Report (DARSweb) at "My Student Center" on <https://buckeyelink.osu.edu> and on the front of this sheet check off the courses that you have completed

Step 2: For remaining requirements, note prerequisites and terms offered

Step 3: For each term below, project when you expect to complete remaining requirements

Semester: _____	Semester: _____	Semester: _____	Semester: _____	Semester: _____	Semester: _____	Semester: _____	Semester: _____
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____

Major Courses: Terms offered and prerequisites

EHE 1100– Au, Sp, Su
 EDU PAES 2189.01– Au, Sp, Su; Corequisite- EDU PAES 2891
 EDU PAES 2891– Au, Sp, Su; Corequisite– EDU PAES 2189.01
 EDU PL 4280– Au, Sp, Su
 EDU PL 5401– Au, Sp, Su
 EARTHSCI 1110– Au, Sp, Su
 BIOCHEM 4511– Au, Sp, Su; CHEM 1220 and 2510, and one semester of a Biological Science
 CHEM 2210– Au, Sp, Su; CHEM 1220 and eligibility for MATH 1151
 CHEM 2510– Au, Sp, Su; CHEM 1220
 CHEM 2520– Au, Sp, Su; CHEM 2510
 CHEM 2540– Au, Sp, Su; Prerequisite or concurrent enrollment in CHEM 2510
 CHEM 2550– Au, Sp, Su; CHEM 2540, prerequisite or concurrent enrollment in CHEM 2520
 MATH 1151– Au, Sp, Su; MATH 1150 or MATH 1148 and 1149
 MATH 1152– Au, Sp, Su; MATH 1152
 PHYSICS 1250– Au, Sp, Su; 1 entrance unit of physics or chem and MATH 1151 co-req or higher
 PHYSICS 2300– Au, Sp, Su; C+ or better in PHYSICS 1251

EDU TL 5442– Au, Sp, Su; Admission to BSEd or MEd
 EDU TL 5721– Au, Sp, Su; Admission to BSEd or MEd
 EDU TL 5722– Au, Sp, Su; Admission to BSEd or MEd
 EDU TL 5741– Au, Sp, Su
 EDU TL 5742– Au, Sp, Su
 EDU TL 5743– Au, Sp, Su
 EDU TL 5744– Au, Sp, Su
 EDU TL 5745– Au, Sp, Su; Admission to BSEd or MEd
 EDU TL 5746– Au, Sp, Su; Admission to BSEd or MEd
 EDU TL 5195– Au, Sp, Su; Admission to BSEd or MEd
 EDU TL 4189– Au, Sp, Su; Admission to BSEd or MEd
 EDU TL 5191– Au, Sp, Su; Permission of Instructor

Chemistry Education SEMESTER PROPOSAL 5/23/11
Effective for NFQF and New Transfer students admitted to the College of Education and Human Ecology

CAA
15 of 32

Name _____

Advisor _____

COURSE & NUMBER	SEM	GR	YR	COURSE & NUMBER	SEM	GR	YR
UNIVERSITY REQUIREMENTS (52-54)				PRE-MAJOR REQUIREMENTS (50)			
Writing (6)				EDUPAES 2189.01- Fld Exp: Intro Exp in Schl System			
English 1110.01 or 1110.02 or 1110.03	3			EDUPAES 2891- Sem in Hlping Rltshps	2		
2 nd level writing	3			EDUPL 4280 – Hist Modern Ed	3		
				EDUPL 5401 – Adol Lrng & Devel in Schl Contxts	3		
Literature (3)				Content			
	3			BIOCHEM 4511 – Intro Bio Chem	4		
Arts (3)				CHEM 2210 – Quant Chem Analys			
	3			CHEM 2510 – Organic Chem 1	4		
Math (5-7)				CHEM 2540 – Organic Chem 1 Lab			
Math Placement 2 or higher, MATH 1148 or Equiv	0-4			CHEM 2520 – Organic Chem 2	4		
MATH 1149 or 1150	3-5			CHEM 2550 – Organic Chem 2 Lab	2		
				EARTH SCI 1110 - Planet Earth	4		
Data Analysis (3)				PHYS 1250 – Mech, Thermo, Waves			
STAT 1350 or 1450	3			PHYS 2300 – Partcles & Waves 1	4		
				MATH 1151	5		
Science (14)							
BIOL 1101 or 1113	4						
CHEM 1210	5						
CHEM 1220	5			MAJOR REQUIREMENTS (40) Must complete the following prior to final year student teaching cohort			
				EDUTL 5442- Tchng & Rding Acrss the Crrclm	3		
Historical Study (3 hours)				EDUTL 5721 – STEM Methods I			
	3			EDUTL 5722 – STEM Methods II	3		
Social Sciences (6)				EDUTL 5741 – Learn Cog STEM			
Take two social science courses from University approved GE list. Choose from 2 different subcategories	6			EDUTL 5742 – STEM Curr & Plan	3		
(HDFS 2200, T&L 4005 recommended)				EDUTL 5743 – Reach ALL Stud STEM	3		
				EDUTL 5744 – Tech Used in STEM	3		
Culture & Ideas or Historical Studies (3)				EDUTL 5745 - Intro Assess STEM			
	3			EDUTL 5746 – Assess STEM II: TPA	3		
Open Option (6)				EDUTL 4189- Adv Fld Exp (Urban)			
Choice	3			EDUTL 4189- Adv Fld Exp (Suburb)	1		
Choice	3			EDUTL 5195- Rflectve Seminar	2		
				EDUTL 5191- Sprvsd Stdnt Tchng Internship	10		
EHE 1100 (1)							
	1						
FREE ELECTIVES (0)				CREDIT HOURS REQUIRED			
					143-145		

Students must complete one Social Diversity in the US course, which is typically met by selecting a 2367 or Social Science course that meets this requirement.
 Students must complete two Global Issues courses, which are typically met by selecting Literature, Art, Cultures & Ideas, or Historical Study courses that meet this requirement.

Bachelor of Science in Education Science and Mathematics Education

What are the requirements for completion of Earth Sciences Education?

GENERAL EDUCATION: 56-58 Hours

Educating students to solve problems; to think critically, logically, scientifically, and creatively; and to be engaged and responsible citizens

WRITING: 6 Hours

English 1110.01, 1110.02, or 1110.03 ____

Any 2367 from EHE GE List ____

MATH: 5-7 Hours

Placement 2 or better or Math 1148 ____

MATH 1149 or 1150 ____

SCIENCE: 18 Hours

BIOL 1113 ____ and BIOL 1114 ____

CHEM 1210 ____ and CHEM 1220 ____

ARTS: 3 Hours
From EHE GE List ____

LITERATURE: 3 Hours
From EHE GE List ____

HISTORICAL STUDY: 3 Hours
From EHE GE List ____

Cultures & Ideas or Historical Study: 3 Hours
From EHE GE List ____

DATA ANALYSIS: 3 Hours
STAT 1350 or 1450 ____

SOCIAL SCIENCE: 6 Hours
Take two courses from EHE GE List from two subcategories ____ ____

OPEN OPTIONS: 6 Hours

Choose GE approved courses, service learning or study abroad ____ ____

SOCIAL DIVERSITY IN THE U.S.: 0 Hours

Select Second Writing, Literature, Historical Study, or Cultures & Ideas with Social Diversity in US focus - double-count permitted

GLOBAL STUDIES: 0 Hours (2 Courses)

Select Literature, Arts, Historical Study, or Cultures & Ideas with global focus- double-count permitted

Minimum Total Hours: 149-151 Elective Hours: 0

MAJOR COURSES: 93 Hours

PRE-MAJOR REQUIREMENTS Complete each course in this box- 51 Hours

EHE 1100- Intro to Edu & Hum Ecol Degree Planning- 1Hr ____
 EDU PAES 2189.01- Fld Exp: Intro Exp in Schl Sys- 3Hr ____
 EDU PAES 2891- Sem in Hlping Rltnshps- 2Hr ____
 EDU PL 4280- Hist Modern Education- 3Hr ____
 EDU PL 5401- Adol Lrning & Devel in Schl Cntxts- 3Hr ____

ASTRON 1161- Solar Sys Astron- 3Hr ____
 EARTSCI 1121- Dynamic Earth- 4Hr ____
 EARTHSCI 1122- Earth Through Time- 4Hr ____
 EARTHSCI 2203 or ENR 201- 3Hr ____
 EARTHSCI 2206 or 5206- 3Hr ____
 EARTHSCI 4450- Water Ice Energy- 3Hr ____

MATH 1151- Calculus 1- 5Hr ____
 PHYSICS 1250- Mech, Thermo, Waves- 5Hr ____
 EARTHSCI 5189 or 5670- 2Hr ____
 EEOB 3310- Evolution- 4Hr ____
 GEOG 1900- Weather & Climate- 4Hr ____

Students should consult their academic advisor as they near completion of the above requirements to discuss the application process for the major. A minimum GPA of 2.75 in the above coursework is required for admission to the major. Please note: major admission is competitive and meeting the minimum requirements does not guarantee admission.

Complete each course in this box- 41 credit hours

EDU TL 5442- Tchng & Rding Acrss the Crriclm- 3Hr ____
 EDU TL 5721- STEM Methods I- 3Hr ____
 EDU TL 5722- STEM Methods II- 3Hr ____
 EDU TL 5741- Learn Cog STEM- 3Hr ____
 EDU TL 5742- STEM Curr & Plan- 3Hr ____

EDU TL 5743- Reach All Stdnrs in STEM- 3Hr ____
 EDU TL 5744- Tech Used in STEM- 3Hr ____
 EDU TL 5745- Intro Assess in STEM- 3Hr ____
 EDU TL 5746- Assess STEM II: TPA- 3Hr ____
 EDU TL 5195- Seminar- 2Hr ____

EDU TL 4189- Adv Fld Exp- 1Hr ____
 EDU TL 4189- Adv Fld Exp- 1Hr ____
 EDU TL 5191- Sprvsd Stndt Tchng Internship- 10Hr ____

SUGGESTED FOUR YEAR PLAN

Autumn First Year	Spring First Year	Autumn Second Year	Spring Second Year	Autumn Third Year	Spring Third Year	Autumn Fourth Year	CAA 17 of 32 Spring Fourth Year
CHEM 1210	CHEM 1220	ENR 201	BIOL 1114	PHYSICS 1250	EDU TL 5744	EDU TL 5742	EDU TL 5191
MATH 1150	MATH 1151	ASTRON 1161	EDU PL 5401	EEOB 3310	EDU TL 5741	EDU TL 5743	EDU TL 5195
ENGLISH 1110.01	EARTHSCI 1122	Literature	EDU PL 4280	EARTHSCI 4450	EDU TL 5721	EDU TL 5722	STAT 1350
EARTHSCI 1121	EDU PAES 2189.01	BIOL 1113	EARTHSCI 2206	EARTHSCI 5670	EDU TL 4189	EDU TL 5746	EDU TL 4005 (Soc Sci)
EHE 1100	EDU PAES 2891	HDFS 2200 (Soc Sci)	Art	GEOG 1900	EDU TL 5442	EDU TL 4189	
		Cultures&Ideas/Hist	Second Writing		EDU TL 5745	History	
Hours: 18	Hours: 17	Hours: 19	Hours: 19	Hours: 18	Hours: 16	Hours: 16	Hours: 15

Creating Your Own Scheduling Plan

Step 1: Access your Degree Audit Report (DARSweb) at "My Student Center" on <https://buckeyelink.osu.edu> and on the front of this sheet check off the courses that you have completed

Step 2: For remaining requirements, note prerequisites and terms offered

Step 3: For each term below, project when you expect to complete remaining requirements

Semester: _____	Semester: _____	Semester: _____	Semester: _____	Semester: _____	Semester: _____	Semester: _____	Semester: _____
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____

Major Courses: Terms offered and prerequisites

EHE 1100– Au, Sp, Su

EDU PAES 2189.01– Au, Sp, Su; Corequisite- EDU PAES 2891

EDU PAES 2891– Au, Sp, Su; Corequisite– EDU PAES 2189.01

EDU PL 4280– Au, Sp, Su

EDU PL 5401– Au, Sp, Su

MATH 1151– Au, Sp, Su; MATH 1150 or MATH 1148 and 1149

PHYSICS 1250– Au, Sp, Su; 1 entrance unit of physics or chem and MATH 1151 co-req or higher

ASTRON 1161– Au, Sp, Su; MATH 1050

EARTHSCI 1121– Au, Sp, Su; MATH 1075

EARTHSCI 1122– Au, Sp, Su

EARTHSCI 2203– Au, Sp, Su

ENR 201– Au, Sp, Su

EARTHSCI 2206– Au, Sp, Su

EARTHSCI 5206– Au, Sp, Su; EARTHSCI 1100, 1105, or 1121

EARTHSCI 4450– Au, Sp, Su; EARTHSCI 1100, or 1121, or GEOG 3901 or 3900

EARTHSCI 5189– Au, Sp, Su; Permission of instructor

EARTHSCI 5670– Au, Sp, Su; EARTHSCI 4502, 4530, and 5550

EEOB 3310– Au, Sp, Su; BIOLOGY 1114

GEOG 1900– Au, Sp, Su

EDU TL 5442– Au, Sp, Su; Admission to BSEd or MEd

EDU TL 5721– Au, Sp, Su; Admission to BSEd or MEd

EDU TL 5722– Au, Sp, Su; Admission to BSEd or MEd

EDU TL 5741– Au, Sp, Su

EDU TL 5742– Au, Sp, Su

EDU TL 5743– Au, Sp, Su

EDU TL 5744– Au, Sp, Su

EDU TL 5745– Au, Sp, Su; Admission to BSEd or MEd

EDU TL 5746– Au, Sp, Su; Admission to BSEd or MEd

EDU TL 5195– Au, Sp, Su; Admission to BSEd or MEd

EDU TL 4189– Au, Sp, Su; Admission to BSEd or MEd

EDU TL 5191– Au, Sp, Su; Permission of Instructor

Earth Sciences Education **SEMESTER PROPOSAL 5/23/11**
Effective for NFQF and New Transfer students admitted to the College of Education and Human Ecology

Name _____

Advisor _____

COURSE & NUMBER	SEM	GR	YR	COURSE & NUMBER	SEM	GR	YR
UNIVERSITY REQUIREMENTS (56-58)				PRE-MAJOR REQUIREMENTS (51)			
Writing (6)				EDUPAES 2189.01- Fld Exp: Intro Exp in Schl System	3		
English 1110.01 or 1110.02 or 1110.03	3			EDU PAES 2891- Sem in Hlpng Rltshps	2		
2 nd level writing	3			EDUPL 4280 – Hist Modern Ed	3		
				EDUPL 5401 – Adol Lrning & Devel in Schl Contxts	3		
Literature (3)	3			Content			
				ASTRO 1161 - Solar Sys Astron	3		
Arts (3)	3			EARTH SCI 1121 - Dynamic Earth	4		
				EARTH SCI 1122 – Earth through Time	4		
Math (5-7)				EARTH SCI 2203 - Envirnmtal Geosci OR	3		
Math Placement 2 or higher, MATH 1148 or Equiv	0-4			ENR 201 – Intro Enviro Sci			
MATH 1149 or 1150	3-5			EARTH SCI 2206 - Prin Oceanography OR	3		
				EARTH SCI 5206 - Adv Ocnography			
Data Analysis (3)				EARTH SCI 4450 - Water Ice Energy	3		
Stat 1350 or 1450	3			EARTH SCI 5189 – Fld Geol OR	2		
				EARTH SCI 5670 – Geol Select Areas			
Natural Sciences (18)				EEOB 3310 – Evolution	4		
BIOLOGY 1113	4			GEOG 1900 – Weather & Climate	4		
BIOLOGY 1114	4			PHYS 1250 – Mech, Fluids, Waves	5		
CHEM 1210	5			MATH 1151	5		
CHEM 1220	5						
Historical Study (3 hours)	3			MAJOR REQUIREMENTS (41)			
				Must complete the following prior to final year student teaching cohort			
Social Sciences (6)	6			EDUTL 5442- Tchng & Rding Acrss the Crrclm	3		
Take two social science courses from University approved GE list. Choose from 2 different subcategories				EDUTL 5721 – STEM Methods I	3		
(HDFS 2200, T&L 4005 recommended)				EDUTL 5722 – STEM Methods II	3		
				EDUTL 5741 – Learn Cog STEM	3		
Culture & Ideas or Historical Studies (3)	3			EDUTL 5742 – STEM Curr & Plan	3		
				EDUTL 5743 – Reach ALL Stud STEM	3		
Open Option (6)				EDUTL 5744 – Tech Used in STEM	3		
Choice	3			EDUTL 5745 - Intro Assess STEM	3		
Choice	3			EDUTL 5746 – Assess STEM II: TPA	3		
				EDUTL 4189- Adv Fld Exp (Urban)	1		
EHE 1100 (1)	1			EDUTL 4189- Adv Fld Exp (Suburb)	1		
				EDUTL 5195- Rflectve Seminar	2		
				EDUTL 5191- Sprvsd Stdnt Tchng Internship	10		
FREE ELECTIVES (0)							
				CREDIT HOURS REQUIRED	149-151		

Students must complete one Social Diversity in the US course, which is typically met by selecting a 2367 or Social Science course that meets this requirement.
 Students must complete two Global Issues courses, which are typically met by selecting Literature, Art, Cultures & Ideas, or Historical Study courses that meet this requirement.

Bachelor of Science in Education Science and Mathematics Education

What are the requirements for completion of Life Sciences Education?

Minimum Total Hours: 153-155 Elective Hours: 0

GENERAL EDUCATION: 56-58 Hours
 Educating students to solve problems; to think critically, logically, scientifically, and creatively; and to be engaged and responsible citizens

WRITING: 6 Hours

English 1110.01, 1110.02, or 1110.03 ____

Any 2367 from EHE GE List ____

MATH: 5-7 Hours

Placement 2 or better or Math 1148 ____

MATH 1149 or 1150 ____

SCIENCE: 18 Hours

BIOL 1113 ____ and BIOL 1114 ____

CHEM 1210 ____ and CHEM 1220 ____

ARTS: 3 Hours
 From EHE GE List ____

LITERATURE: 3 Hours
 From EHE GE List ____

HISTORICAL STUDY: 3 Hours
 From EHE GE List ____

Cultures & Ideas or Historical Study: 3 Hours
 From EHE GE List ____

DATA ANALYSIS: 3 Hours
 STAT 1350 or 1450 ____

SOCIAL SCIENCE: 6 Hours
 Take two courses from EHE GE List from two subcategories ____ ____

OPEN OPTIONS: 6 Hours
 Choose GE approved courses, service learning or study abroad ____ ____

SOCIAL DIVERSITY IN THE U.S.: 0 Hours
 Select Second Writing, Literature, Historical Study, or Cultures & Ideas with Social Diversity in US focus - double-count permitted

GLOBAL STUDIES: 0 Hours (2 Courses)
 Select Literature, Arts, Historical Study, or Cultures & Ideas with global focus- double-count permitted

MAJOR COURSES: 97 Hours

PRE-MAJOR REQUIREMENTS Complete each course in this box- 56 Hours

EHE 1100- Intro to Edu & Hum Ecol Degree Planning- 1Hr ____	MATH 1151- Calculus 1- 5Hr ____	BIOCHEM 4511- Intro Biochem- 4Hr ____
EDU PAES 2189.01- Fld Exp: Intro Exp in Schl Sys- 3Hr ____	PHYSICS 1250- Mech, Thermo, Waves- 5Hr ____	EEOB 3310- Evolution- 4Hr ____
EDU PAES 2891- Sem in Hlping Rltnshps- 2Hr ____	PHYSICS 1251- Elec, Magn, Optic, QM- 5Hr ____	EEOB 3320- Orgnc Diversity- 3Hr ____
EDU PL 4280- Hist Modern Education- 3Hr ____	EARTSCI 1121- Dynamic Earth- 4Hr ____	MOLGEN 3300- Gnrl Plnt Biology- 3Hr ____
EDU PL 5401- Adol Lrning & Devel in Schl Cntxts- 3Hr ____	EARTHSCI 1122- Earth Through Time- 4Hr ____	MOLGEN 4500- Gnrl Genetics- 3Hr ____
	CHEM 2310 or CHEM 2510- Org Chem- 4Hr ____	

Students should consult their academic advisor as they near completion of the above requirements to discuss the application process for the major. A minimum GPA of 2.75 in the above coursework is required for admission to the major. Please note: major admission is competitive and meeting the minimum requirements does not guarantee admission.

Complete each course in this box- 41 credit hours

EDU TL 5442- Tchng & Rding Acrss the Crriclm- 3Hr ____	EDU TL 5743- Reach All Stdnts in STEM- 3Hr ____	EDU TL 4189- Adv Fld Exp- 1Hr ____
EDU TL 5721- STEM Methods I- 3Hr ____	EDU TL 5744- Tech Used in STEM- 3Hr ____	EDU TL 4189- Adv Fld Exp- 1Hr ____
EDU TL 5722- STEM Methods II- 3Hr ____	EDU TL 5745- Intro Assess in STEM- 3Hr ____	EDU TL 5191- Sprvsd Stndt Tchng Internship- 10Hr ____
EDU TL 5741- Learn Cog STEM- 3Hr ____	EDU TL 5746- Assess STEM II: TPA- 3Hr ____	
EDU TL 5742- STEM Curr & Plan- 3Hr ____	EDU TL 5195- Seminar- 2Hr ____	

SUGGESTED FOUR YEAR PLAN

Autumn First Year	Spring First Year	Autumn Second Year	Spring Second Year	Autumn Third Year	Spring Third Year	Autumn Fourth Year	Spring Fourth Year
CHEM 1210	CHEM 1220	CHEM 2310	PHYSICS 1251	EARTHSCI 1121	EDU TL 5744	Cultures&Ideas/Hist	EDU TL 5191
MATH 1150	MATH 1151	PHYSICS 1250	EDU PL 5401	STAT 1350	EDU TL 5743	EDU TL 5741	EDU TL 5195
ENGLISH 1110.01	BIOL 1114	Literature	EDU PL 4280	HDFS 2200 (Soc Sci)	EDU TL 5721	EDU TL 5742	History
BIOL 1113	EDU PAES 2189.01	Second Writing	EEOB 3320	MOLGEN 4500	EDU TL 5442	EDU TL 5722	EDU TL 4005 (Soc Sci)
EHE 1100	EDU PAES 2891	EEOB 3310	MOLGEN 3300	EDUTL 4189	EDU TL 5745	EDU TL 5746	
				BIOCHEM 4511	EARTHSCI 1122	EDU TL 4189	
						Art	
Hours: 18	Hours: 19	Hours: 19	Hours: 17	Hours: 18	Hours: 19	Hours: 19	Hours: 18

Creating Your Own Scheduling Plan

Step 1: Access your Degree Audit Report (DARSweb) at "My Student Center" on <https://buckeyelink.osu.edu> and on the front of this sheet check off the courses that you have completed

Step 2: For remaining requirements, note prerequisites and terms offered

Step 3: For each term below, project when you expect to complete remaining requirements

Semester: _____	Semester: _____	Semester: _____	Semester: _____	Semester: _____	Semester: _____	Semester: _____	Semester: _____
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____

Major Courses: Terms offered and prerequisites

EHE 1100- Au, Sp, Su
 EDU PAES 2189.01- Au, Sp, Su; Corequisite- EDU PAES 2891
 EDU PAES 2891- Au, Sp, Su; Corequisite- EDU PAES 2189.01
 EDU PL 4280- Au, Sp, Su
 EDU PL 5401- Au, Sp, Su
 MATH 1151- Au, Sp, Su; MATH 1150 or MATH 1148 and 1149
 PHYSICS 1250- Au, Sp, Su; 1 entrance unit of physics or chem and MATH 1151 co-req or higher
 PHYSICS 1251- Au, Sp, Su; PHYSICS 1250 and MATH 1151
 BIOCHEM 4511- Au, Sp, Su; CHEM 1220, and CHEM 2510 or 2310 with permission of instructor, Biol Sci
 CHEM 2310- Au, Sp, Su; CHEM 1220
 CHEM 2510- Au, Sp, Su; CHEM 1220
 EARTHSCI 1121- Au, Sp, Su; MATH 1075
 EARTHSCI 1122- Au, Sp, Su
 EEOB 3310- Au, Sp, Su; BIOLOGY 1114
 EEOB 3320- Au, Sp, Su; EEOB 3310
 MOLGEN 3300- Au, Sp, Su; BIOL 1113
 MOLGEN 4500- Au, Sp, Su; BIOL 1113 and 3 additional Biol Sci credits

EDU TL 5442- Au, Sp, Su; Admission to BSEd or MEd
 EDU TL 5721- Au, Sp, Su; Admission to BSEd or MEd
 EDU TL 5722- Au, Sp, Su; Admission to BSEd or MEd
 EDU TL 5741- Au, Sp, Su
 EDU TL 5742- Au, Sp, Su
 EDU TL 5743- Au, Sp, Su
 EDU TL 5744- Au, Sp, Su
 EDU TL 5745- Au, Sp, Su; Admission to BSEd or MEd
 EDU TL 5746- Au, Sp, Su; Admission to BSEd or MEd
 EDU TL 5195- Au, Sp, Su; Admission to BSEd or MEd
 EDU TL 4189- Au, Sp, Su; Admission to BSEd or MEd
 EDU TL 5191- Au, Sp, Su; Permission of Instructor

Life Sciences Education SEMESTER PROPOSAL 5/23/11
Effective for NFQF and New Transfer students admitted to the College of Education and Human Ecology

Name _____ Advisor _____

COURSE & NUMBER	SEM	GR	YR	COURSE & NUMBER	SEM	GR	YR
UNIVERSITY REQUIREMENTS (56-58)				PRE-MAJOR REQUIREMENTS (55)			
Writing (6)				EDUPAES 2189.01- Fld Exp: Intro Exp in Schl System	3		
English 1110.01 or 1110.02 or 1110.03	3			EDU PAES 2891- Sem in Hlpng Rltshps	2		
2 nd level writing	3			EDUPL 4280 – Hist Modern Ed	3		
				EDUPL 5401 – Adol Lrning & Devel in Schl Contxts	3		
Literature (3)	3			Content			
				BIOCHEM 4511 – Intro Bio Chem	4		
Arts (3)	3			CHEM 2310 – Intro Organic Chem OR	4		
				CHEM 2510 – Organic Chem 1			
Math (5-7)				EARTH SCI 1121 - Dynamic Earth	4		
Math Placement 2 or higher, MATH 1148 or Equiv	0-4			EARTH SCI 1122 – Earth through Time	4		
MATH 1149 or 1150	3-5			EEOB 3310 – Evolution	4		
				EEOB 3320 – Org Diversity	3		
Data Analysis (3)				MOLEGEN 3300 – General Plant Bio	3		
STAT 1350 or 1450	3			MOLEGEN 4500 – General genetics	3		
				PHYS 1250 – Mech, Thermo, Waves	5		
Natural Sciences (18)				PHYS 1251 – Elec,Magn,Optic,QM	5		
BIOLOGY 1113	4			MATH 1151	5		
BIOLOGY 1114	4						
CHEM 1210	5			MAJOR REQUIREMENTS (41)			
CHEM 1220	5			Must complete the following prior to final year student teaching cohort			
				EDUTL 5442- Tchng & Rding Acrss the Crrclm	3		
				EDUTL 5721 – STEM Methods I	3		
Historical Study (3 hours)	3			EDUTL 5722 – STEM Methods II	3		
				EDUTL 5741 – Learn Cog STEM	3		
Social Sciences (6)	6			EDUTL 5742 – STEM Curr & Plan	3		
Take two social science courses from University approved GE list. Choose from 2 different subcategories				EDUTL 5743 – Reach ALL Stud STEM	3		
(HDFS 2200, T&L 4005 recommended)				EDUTL 5744 – Tech Used in STEM	3		
				EDUTL 5745 - Intro Assess STEM	3		
Culture & Ideas or Historical Studies (3)	3			EDUTL 5746 – Assess STEM II: TPA	3		
				EDUTL 4189- Adv Fld Exp (Urban)	1		
Open Option (6)				EDUTL 4189- Adv Fld Exp (Suburb)	1		
Choice	3			EDUTL 5191- Sprvsd Stdnt Tchng Internship	10		
Choice	3			EDUTL 5195- Rflctve Seminar	2		
EHE 1100 (1)	1						
FREE ELECTIVES (0)				CREDIT HOURS REQUIRED	153-155		

Students must complete one Social Diversity in the US course, which is typically met by selecting a 2367 or Social Science course that meets this requirement.
 Students must complete two Global Issues courses, which are typically met by selecting Literature, Art, Cultures & Ideas, or Historical Study courses that meet this requirement.

Bachelor of Science in Education Science and Mathematics Education

What are the requirements for completion of Mathematics Education?

GENERAL EDUCATION: 48-50 Hours

Educating students to solve problems; to think critically, logically, scientifically, and creatively; and to be engaged and responsible citizens

**WRITING:
6 Hours**

English 1110.01, 1110.02, or 1110.03 ____

Any 2367 from EHE GE List ____

**MATH:
5-7 Hours**

Placement 2 or better or Math 1148 ____

MATH 1149 or 1150 ____

**SCIENCE:
10 Hours**

Take two or three science courses totaling at least 10 credits from University approved GE list. At least one course must have a lab. At least one course must be a Biological Science and one must be a Physical Science. ____ _

**ARTS:
3 Hours**

From EHE GE List ____

**LITERATURE:
3 Hours**

From EHE GE List ____

**HISTORICAL STUDY:
3 Hours**

From EHE GE List ____

**Cultures & Ideas or
Historical Study: 3 Hours**

From EHE GE List ____

**DATA ANALYSIS:
3 Hours**

STAT 3460 ____

SOCIAL SCIENCE: 6 Hours

Take two courses from EHE GE List from two subcategories ____ _

OPEN OPTIONS: 6 Hours

Choose GE approved courses, service learning or study abroad ____ _

SOCIAL DIVERSITY IN THE U.S.: 0 Hours

Select Second Writing, Literature, Historical Study, or Cultures & Ideas with Social Diversity in US focus - double-count permitted

GLOBAL STUDIES: 0 Hours (2 Courses)

Select Literature, Arts, Historical Study, or Cultures & Ideas with global focus- double-count permitted

MAJOR COURSES: 94-95 Hours

PRE-MAJOR REQUIREMENTS Complete each course in this box- 53-54 Hours

EHE 1100- Intro to Edu & Hum Ecol Degree Planning- 1Hr ____
 EDU PAES 2189.01- Fld Exp: Intro Exp in Schl Sys- 3Hr ____
 EDU PAES 2891- Sem in Hlpng Rltshps- 2Hr ____
 EDU PL 4280- Hist Modern Education- 3Hr ____
 EDU PL 5401- Adol Lrning & Devel in Schl Cntxts- 3Hr ____
 CS&E 1223, 1222, or 2221- 3-4hr ____

MATH 1151- Calculus 1- 5Hr ____
 MATH 1152- Calculus 2- 5Hr ____
 MATH 2153- Calculus 3- 4Hr ____
 MATH 2174 or 2568- 3Hr ____
 MATH 3345- Fdn Higher Math- 3Hr ____
 MATH 4507- Geometry- 3Hr ____

MATH 4547- Intro Analysis 1- 3Hr ____
 MATH 4548- Intro Analysis 2- 3Hr ____
 MATH 4578- Discr Math Models- 3Hr ____
 MATH 4580- Abstract Algebra 1- 3Hr ____
 MATH 4581- Abstract Algebra 2- 3Hr ____

Students should consult their academic advisor as they near completion of the above requirements to discuss the application process for the major. A minimum GPA of 2.75 in the above coursework is required for admission to the major. Please note: major admission is competitive and meeting the minimum requirements does not guarantee admission.

Complete each course in this box- 41 credit hours

EDU TL 5442- Tchng & Rding Acrss the Crriclm- 3Hr ____
 EDU TL 5711- Tch Mth Sec Schl- 3Hr ____
 EDU TL 5712- Fund Ideas Schl Math 1 Algebra- 3Hr ____
 EDU TL 5741- Learn Cog STEM- 3Hr ____
 EDU TL 5742- STEM Curr & Plan- 3Hr ____

EDU TL 5743- Reach All Stdntr in STEM- 3Hr ____
 EDU TL 5744- Tech Used in STEM- 3Hr ____
 EDU TL 5745- Intro Assess in STEM- 3Hr ____
 EDU TL 5746- Assess STEM II: TPA- 3Hr ____
 EDU TL 5195- Seminar- 2Hr ____

EDU TL 4189- Adv Fld Exp- 1Hr ____
 EDU TL 4189- Adv Fld Exp- 1Hr ____
 EDU TL 5191- Sprvsd Stndt Tchng Internship- 10Hr ____

Minimum Total Hours: 142-145 Elective Hours: 0

SUGGESTED FOUR YEAR PLAN

Autumn First Year	Spring First Year	Autumn Second Year	Spring Second Year	Autumn Third Year	Spring Third Year	Autumn Fourth Year	CAA 23 of 32 Spring Fourth Year
CS&E 1223	Physical Science	Biological Science	EDU PL 5401	MATH 2174	MATH 4580	EDU TL 5741	EDU TL 5191
MATH 1150	MATH 1151	MATH 1152	EDU PL 4280	MATH 4507	EDU TL 5744	EDU TL 5743	EDU TL 5195
ENGLISH 1110.01	EDU PAES 2189.01	HDFS 2200 (Soc Sci)	MATH 2153	EDU TL 5711	EDU TL 5742	EDU TL 5746	Cultures&Ideas/Hist
Literature	EDU PAES 2891	Second Writing	STAT 3460	EDU TL 5442	EDU TL 5712	EDU TL 4189	MATH 4578
EHE 1100	History	EDU TL 4005 (Soc Sci)		MATH 3345	EDU TL 5745	MATH 4581	
Art					EDU TL 4189	MATH 4548	
					MATH 4547		
Hours: 18	Hours: 18	Hours: 19	Hours: 16	Hours: 15	Hours: 19	Hours: 16	Hours: 15

Creating Your Own Scheduling Plan

Step 1: Access your Degree Audit Report (DARSweb) at "My Student Center" on <https://buckeyelink.osu.edu> and on the front of this sheet check off the courses that you have completed

Step 2: For remaining requirements, note prerequisites and terms offered

Step 3: For each term below, project when you expect to complete remaining requirements

Semester: _____	Semester: _____	Semester: _____	Semester: _____	Semester: _____	Semester: _____	Semester: _____	Semester: _____
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____

Major Courses: Terms offered and prerequisites

EHE 1100– Au, Sp, Su
 EDU PAES 2189.01– Au, Sp, Su; Corequisite- EDU PAES 2891
 EDU PAES 2891– Au, Sp, Su; Corequisite- EDU PAES 2189.01
 EDU PL 4280– Au, Sp, Su
 EDU PL 5401– Au, Sp, Su
 CS&E 1223– Au, Sp, Su
 CS&E 1222– Au, Sp, Su; MATH 1151 or 1161
 CS&E 2221– Au, Sp, Su; CS&E 1211 or 1221, or 1223, co-reg MATH 1151 or 1161
 MATH 1151– Au, Sp, Su; MATH 1150 or MATH 1148 and 1149
 MATH 1152– Au, Sp, Su; C- or better in MATH 1151, 1156, or 1114
 MATH 2153– Au, Sp, Su; C- or better in MATH 1152
 MATH 2174– Au, Sp, Su
 MATH 2568– Au, Sp, Su
 MATH 3345– Au, Sp, Su; C- or better in MATH 2153
 MATH 4507– Au, Sp, Su; C- or better in MATH 3345 and C- or better in MATH 2568
 MATH 4547– Au, Sp, Su; C- or better in MATH 3345
 MATH 4548– Au, Sp, Su; C- or better in MATH 4547
 MATH 4578– Au, Sp, Su; C- or better in MATH 4547
 MATH 4580– Au, Sp, Su
 MATH 4581– Au, Sp, Su
 STAT 3460– Au, Sp, Su; MATH 1152

EDU TL 5442– Au, Sp, Su; Admission to BSEd or MEd
 EDU TL 5711– Au, Sp, Su; Admission to BSEd or MEd
 EDU TL 5712– Au, Sp, Su; Admission to BSEd or MEd
 EDU TL 5741– Au, Sp, Su
 EDU TL 5742– Au, Sp, Su
 EDU TL 5743– Au, Sp, Su
 EDU TL 5744– Au, Sp, Su
 EDU TL 5745– Au, Sp, Su; Admission to BSEd or MEd
 EDU TL 5746– Au, Sp, Su; Admission to BSEd or MEd
 EDU TL 5195– Au, Sp, Su; Admission to BSEd or MEd
 EDU TL 4189– Au, Sp, Su; Admission to BSEd or MEd
 EDU TL 5191– Au, Sp, Su; Permission of Instructor

Mathematics Education **SEMESTER PROPOSAL 5/23/11**
Effective for NFQF and New Transfer students admitted to the College of Education and Human Ecology

Name _____

Advisor _____

COURSE & NUMBER	SEM	GR	YR	COURSE & NUMBER	SEM	GR	YR
UNIVERSITY REQUIREMENTS (48-50)				PRE-MAJOR REQUIREMENTS (52-53)			
Writing (6)				EDUPAES 2189.01- Fld Exp: Intro Exp in Schl System	3		
English 1110.01 or 1110.02 or 1110.03	3			EDU PAES 2891- Sem in Hlpng Rltshps	2		
2 nd level writing	3			EDUPL 5401 – Adol Lrning & Devel in Schl Cnxts	3		
				EDUPL 4280 – Hist Modern Ed	3		
Literature (3)	3			Content			
				CSE 1223, 1222 OR 2221	3-4		
Arts (3)	3			Math 1151	5		
				Math 1152	5		
Math (5-7)				MATH 2153 – Calculus 3	4		
Math Placement 2 or higher, MATH 1148 or Equiv	0-4			MATH 2174 – Lin Alg & Diff Eq or 2568 – Linear Algebra	3		
MATH 1149 or 1150	3-5			MATH 3345 - Fdn Higher Math	3		
				MATH 4507 - Geometry	3		
Data Analysis (3)- STAT 3460				MATH 4547 - Intro Analysis 1	3		
				MATH 4548 - Intro Analysis 2	3		
Science (10)	10			MATH 4578 - Discr Math Models	3		
Take two or three science courses totaling at least 10 credits from University approved GE list. At least one course must have a lab. At least one course must be a Biological Science and one must be a Physical Science. (HUMN NTR 2310 recommended)				MATH 4580 – Abstract Algebra 1	3		
				MATH 4581 – Abstract Algebra 2	3		
				MAJOR REQUIREMENTS (41)			
Historical Study (3 hours)	3			Must complete the following prior to final year student teaching cohort			
				EDUPL 5442- Tchng & Rding Acrss the Crrclm	3		
Social Sciences (6)	6			EDUTL 5711 – Tch Mth Sec Sch	3		
Take two social science courses from University approved GE list. Choose from 2 different subcategories				EDUTL 5712 – Fund Ideas Sch Math I Algebra	3		
(HDFS 2200, T&L 4005 recommended)				EDUTL 5741 – Learn Cog STEM	3		
				EDUTL 5742 – STEM Curr & Plan	3		
Culture & Ideas or Historical Studies (3)	3			EDUTL 5743 – Reach ALL Stud STEM	3		
				EDUTL 5744 – Tech Used in STEM	3		
Open Option (6)				EDUTL 5745 - Intro Assess STEM	3		
Choice	3			EDUTL 5746 – Assess STEM II: TPA	3		
Choice	3			EDUTL 4189- Adv Fld Exp (Urban)	1		
				EDUTL 4189- Adv Fld Exp (Suburb)	1		
EHE 1100 (1)	1			EDUTL 5191- Sprvsd Stnt Tchng Internship	10		
				EDUTL 5195- Rflectve Seminar	2		
FREE ELECTIVES (0)				CREDIT HOURS REQUIRED	142-145		

Students must complete one Social Diversity in the US course, which is typically met by selecting a 2367 or Social Science course that meets this requirement.
Students must complete two Global Issues courses, which are typically met by selecting Literature, Art, Cultures & Ideas, or Historical Study courses that meet this requirement.

Bachelor of Science in Education Science and Mathematics Education

What are the requirements for completion of Physics Education?

Minimum Total Hours: 148-154 Elective Hours: 0

GENERAL EDUCATION: 51-55 Hours
 Educating students to solve problems; to think critically, logically, scientifically, and creatively; and to be engaged and responsible citizens

WRITING:
 6 Hours

English 1110.01, 1110.02, or 1110.03 ____

Any 2367 from EHE GE List ____

MATH:
 5-7 Hours

Placement 2 or better or Math 1148 ____

MATH 1149 or 1150 ____

SCIENCE:
 13-15 Hours

Select Biol Sci from EHE GE List ____

CHEM 1210 ____ and CHEM 1220 ____

ARTS:
 3 Hours
 From EHE GE List ____

LITERATURE:
 3 Hours
 From EHE GE List ____

HISTORICAL STUDY:
 3 Hours
 From EHE GE List ____

Cultures & Ideas or Historical Study: 3 Hours
 From EHE GE List ____

DATA ANALYSIS:
 3 Hours
 PHYSICS 3700 ____

SOCIAL SCIENCE: 6 Hours
 Take two courses from EHE GE List from two subcategories ____ ____

OPEN OPTIONS: 6 Hours
 Choose GE approved courses, service learning or study abroad ____ ____

SOCIAL DIVERSITY IN THE U.S.: 0 Hours
 Select Second Writing, Literature, Historical Study, or Cultures & Ideas with Social Diversity in US focus - double-count permitted

GLOBAL STUDIES: 0 Hours (2 Courses)
 Select Literature, Arts, Historical Study, or Cultures & Ideas with global focus- double-count permitted

MAJOR COURSES: 96-98 Hours

PRE-MAJOR REQUIREMENTS Complete each course in this box- 55-57 Hours

EHE 1100- Intro to Edu & Hum Ecol Degree Planning- 1Hr ____	MATH 1151- Calculus 1- 5Hr ____	PHYSICS 1250- Mech, Thermo, Waves- 5Hr ____
EDU PAES 2189.01- Fld Exp: Intro Exp in Schl Sys- 3Hr ____	CS&E 1222- Intro Comp Prog C++- 3Hr ____	PHYSICS 1251- E&M, Optics, Mdrn Physics- 5Hr ____
EDU PAES 2891- Sem in Hlping Rltshps- 2Hr ____	GEOG 1900- Weather & Climate- 4Hr ____	PHYSICS 2300- Partcles & Waves 1- 4Hr ____
EDU PL 4280- Hist Modern Education- 3Hr ____	ASTRON 2291- Astphys & Planets- 3Hr ____	PHYSICS 2301- Partcles & Waves 2- 4Hr ____
EDU PL 5401- Adol Lrning & Devel in Schl Cntxts- 3Hr ____	BIOCHEM 521 or CHEM 2510&2540- 4-6Hr ____	PHYSICS 4700- Intro Electronics- 3Hr ____
	EARTHSCI 1110- Planet Earth- 4Hr ____	

Students should consult their academic advisor as they near completion of the above requirements to discuss the application process for the major. A minimum GPA of 2.75 in the above coursework is required for admission to the major. Please note: major admission is competitive and meeting the minimum requirements does not guarantee admission.

Complete each course in this box- 41 credit hours

EDU TL 5442- Tchng & Rding Acrss the Crriclm- 3Hr ____	EDU TL 5743- Reach All Stdnts in STEM- 3Hr ____	EDU TL 4189- Adv Fld Exp- 1Hr ____
EDU TL 5721- STEM Methods I- 3Hr ____	EDU TL 5744- Tech Used in STEM- 3Hr ____	EDU TL 4189- Adv Fld Exp- 1Hr ____
EDU TL 5722- STEM Methods II- 3Hr ____	EDU TL 5745- Intro Assess in STEM- 3Hr ____	EDU TL 5191- Sprvsd Stndt Tchng Internship- 10Hr ____
EDU TL 5741- Learn Cog STEM- 3Hr ____	EDU TL 5746- Assess STEM II: TPA- 3Hr ____	
EDU TL 5742- STEM Curr & Plan- 3Hr ____	EDU TL 5195- Seminar- 2Hr ____	

SUGGESTED FOUR YEAR PLAN

Autumn First Year	Spring First Year	Autumn Second Year	Spring Second Year	Autumn Third Year	Spring Third Year	Autumn Fourth Year	Spring Fourth Year
CHEM 1210	CHEM 1220	PHYSICS 1250	ASTRON 2291	PHYSICS 2300	EDU TL 5721	EDU TL 5744	EDU TL 5191
MATH 1150	MATH 1151	EDU PL 4280	EDU PL 5401	PHYSICS 3700	EDU TL 4189	EDU TL 5743	EDU TL 5195
ENGLISH 1110.01	EARTHSCI 1110	CHEM 1222	BIOCHEM 521	EDU TL 5741	EDU TL 5442	EDU TL 5722	History
GEOG 1900	EDU PAES 2189.01	Biological Science	PHYSICS 1251	EDU TL 4005 (Soc Sci)	EDU TL 5745	EDU TL 5746	Literature
EHE 1100	EDU PAES 2891	HDFS 2200 (Soc Sci)	Second Writing	Cult&Ideas/Hist Art	EDU TL 5742	EDU TL 4189	
					PHYSICS 2301	PHYSICS 4700	
Hours: 18	Hours: 19	Hours: 17	Hours: 18	Hours: 19	Hours: 17	Hours: 16	Hours: 18

Creating Your Own Scheduling Plan

Step 1: Access your Degree Audit Report (DARSweb) at "My Student Center" on <https://buckeyelink.osu.edu> and on the front of this sheet check off the courses that you have completed

Step 2: For remaining requirements, note prerequisites and terms offered

Step 3: For each term below, project when you expect to complete remaining requirements

Semester: _____	Semester: _____	Semester: _____	Semester: _____	Semester: _____	Semester: _____	Semester: _____	Semester: _____
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____

Major Courses: Terms offered and prerequisites

EHE 1100– Au, Sp, Su

EDU PAES 2189.01– Au, Sp, Su; Corequisite- EDU PAES 2891

EDU PAES 2891– Au, Sp, Su; Corequisite– EDU PAES 2189.01

EDU PL 4280– Au, Sp, Su

EDU PL 5401– Au, Sp, Su

MATH 1151– Au, Sp, Su; MATH 1150 or MATH 1148 and 1149

CS&E 1222– Au, Sp, Su; MATH 1151

GEOG 1900– Au, Sp, Su

ASTRON 2291– Au, Sp, Su; PHYSICS 1251 or concurrent or permission of instructor

BIOCHEM 521– Au, Sp, Su

CHEM 2510– Au, Sp, Su; CHEM 1220

CHEM 2540– Au, Sp, Su; Prerequisite or concurrent with CHEM 2510 or 2610

EARTHSCI 1110– Au, Sp, Su

PHYSICS 1250– Au, Sp, Su; 1 entrance unit of physics or chem and MATH 1151 co-req or higher

PHYSICS 1251– Au, Sp, Su; PHYSICS 1250, MATH 1151

PHYSICS 2300– Au, Sp, Su; C+ or better in PHYSICS 1251

PHYSICS 2301– Au, Sp, Su; C+ or better in PHYSICS 2300

PHYSICS 3700– Au, Sp, Su; PHYSICS 1251 and CSE 1222

PHYSICS 4700– Au, Sp, Su; PHYSICS 3700

EDU TL 5442– Au, Sp, Su; Admission to BSEd or MEd

EDU TL 5721– Au, Sp, Su; Admission to BSEd or MEd

EDU TL 5722– Au, Sp, Su; Admission to BSEd or MEd

EDU TL 5741– Au, Sp, Su

EDU TL 5742– Au, Sp, Su

EDU TL 5743– Au, Sp, Su

EDU TL 5744– Au, Sp, Su

EDU TL 5745– Au, Sp, Su; Admission to BSEd or MEd

EDU TL 5746– Au, Sp, Su; Admission to BSEd or MEd

EDU TL 5195– Au, Sp, Su; Admission to BSEd or MEd

EDU TL 4189– Au, Sp, Su; Admission to BSEd or MEd

EDU TL 5191– Au, Sp, Su; Permission of Instructor

Name _____

Advisor _____

COURSE & NUMBER	SEM	GR	YR	COURSE & NUMBER	SEM	GR	YR
UNIVERSITY REQUIREMENTS (51-55)				PRE-MAJOR REQUIREMENTS (55-57)			
Writing (6)				EDUPAES 2189.01- Fld Exp: Intro Exp in Schl System	3		
English 1110.01 or 1110.02 or 1110.03	3			EDU PAES 2891- Sem in Hlpng Rltshps	2		
2 nd level writing	3			EDUPL 4280 – Hist Modern Ed	3		
				EDUPL 5401 – Adol Lrning & Devel in Schl Contxts	3		
Literature (3)	3			Content			
				ASTRO 2291 – Astrphys & Planets	3		
Arts (3)	3			BIOCHEM 521 OR			
				CHEM 2510&2540 Org Chem & Lab	4-6		
Math (5-7)				EARTH SCI 1110 - Planet Earth	4		
Math Placement 2 or higher, MATH 1148 or Equiv	0-4			GEOG 1900 – Weather & Climate	4		
MATH 1149 or 1150	3-5			PHYS 1250 – Mech, Thermo, Waves	5		
				PHYS 1251- E&M, Optics, Mdrn Physics	5		
Data Analysis (3)	3			PHYS 2300 – Partcles & Waves 1	4		
PHYSICS 3700				PHYS 2301 – Partcles & Waves 2	4		
				PHYS 4700 - Intro Electronics	3		
Science (13-15)				MATH 1151	5		
CHEM 1210 – General Chem 1	5			CS&E 1222- Intro Comp Prog C++	3		
CHEM 1220 – General Chem 2	5						
Any Biological Science	3-5						
				MAJOR REQUIREMENTS (41)			
Historical Study (3 hours)	3			EDUTL 5442- Tchng & Rding Acrss the Crrclm	3		
				EDUTL 5721 – STEM Methods I	3		
Social Sciences (6)	6			EDUTL 5722 – STEM Methods II	3		
Take two social science courses from University approved GE list. Choose from 2 different subcategories				EDUTL 5741 – Learn Cog STEM	3		
(HDFS 2200, T&L 4005 recommended)				EDUTL 5742 – STEM Curr & Plan	3		
				EDUTL 5743 – Reach ALL Stud STEM	3		
Culture & Ideas or Historical Studies (3)	3			EDUTL 5744 – Tech Used in STEM	3		
				EDUTL 5745 - Intro Assess STEM	3		
Open Option (6)				EDUTL 5746 – Assess STEM II: TPA	3		
Choice	3			EDUTL 4189- Adv Fld Exp (Urban)	1		
Choice	3			EDUTL 4189- Adv Fld Exp (Suburb)	1		
				EDUTL 5191- Sprvsd Stdnt Tchng Internship	10		
EHE 1100 (1)	1			EDUTL 5195- Rflctve Seminar	2		
FREE ELECTIVES (0)				CREDIT HOURS REQUIRED	148-154		

Students must complete one Social Diversity in the US course, which is typically met by selecting a 2367 or Social Science course that meets this requirement.
 Students must complete two Global Issues courses, which are typically met by selecting Literature, Art, Cultures & Ideas, or Historical Study courses that meet this requirement.

NCTM Standards for Mathematics	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Required Courses Offered by EDUTL															
EDUPL 5401- Adol Lrning & Devel in Schl Cntxts			I		I		I	I	A	A	I	I	A	I	A
EDUPL 5442- Tchng & Rding Acrss the Crrclm			B				I	I	A		I	I	I	A	A
EDUTL 5711 – Tch Mth Sec Sch	A	A	A	A	A	I	I	A	A	A	I	I	A	A	A
EDUTL 5712 – Fund Ideas Sch Math 1 Algebra	A	A	A	A	A	A	A	A	A	A	A	I	A	A	A
EDUTL 5741 – Learn Cog STEM	B	I	I	I	I		A	A		A	I	I	I	I	A
EDUTL 5742 – STEM Curr & Plan	I	A	A	A	A	I	A	A	A	A	A	I	A	A	A
EDUTL 5743 – Reach ALL Stud STEM	B		I	A	I	I	A	I	A	A	I	I	I	A	A
EDUTL 5744 – Tech Used in STEM	B	I	I	I	A	I	A	I	A	A	A	I	I	A	A
EDUTL 5745 - Intro Assess STEM	B	I	I	I	I	I	I	I	A	A	I	I	I	I	A
EDUTL 5746 – Assess STEM II: TPA	I	A	A	A	A	I	A	A	A	A	A	I	A	A	A
EDUTL 4189- Adv Fld Exp (Urban)	I	I	I	I	A	I	A	I	A	A	I	I	I	A	A
EDUTL 4189- Adv Fld Exp (Suburb)	I	I	I	I	A	A	A	I	A	A	I	I	I	A	A
EDUTL 5195 – Seminar	I	I	A		A	A	A	A							
EDUTL 5191- Sprvsd Stdnt Tchng Internship	I	A	A	A	A	A	A	A	A	A	A	A	A	A	A

1. Knowledge of Problem Solving. Candidates know, understand and apply the process of mathematical problem solving.
2. Knowledge of Reasoning and Proof. Candidates reason, construct, and evaluate mathematical arguments and develop an appreciation for mathematical rigor and inquiry.
3. Knowledge of Mathematical Communication. Candidates communicate their mathematical thinking orally and in writing to peers, faculty and others.
4. Knowledge of Mathematical Connections. Candidates recognize, use, and make connections between and among mathematical ideas and in contexts outside mathematics to build mathematical understanding.
5. Knowledge of Mathematical Representation. Candidates use varied representations of mathematical ideas to support and deepen students' mathematical understanding.
6. Knowledge of Technology. Candidates embrace technology as an essential tool for teaching and learning mathematics.
7. Dispositions. Candidates support a positive disposition toward mathematical processes and mathematical learning.
8. Knowledge of Mathematics Pedagogy. Candidates possess a deep understanding of how students learn mathematics and of the pedagogical knowledge specific to mathematics teaching and learning.
9. Knowledge of Number and Operations. Candidates demonstrate computational proficiency, including a conceptual understanding of numbers, ways of representing number, relationships among number and number systems, and the meaning of operations.
10. Knowledge of Different Perspectives on Algebra. Candidates emphasize relationships among quantities including functions, ways of representing mathematical relationships, and the analysis of change.
11. Knowledge of Geometries. Candidates use spatial visualization and geometric modeling to explore and analyze geometric shapes, structures, and their properties.
12. Knowledge of Calculus. Candidates demonstrate a conceptual understanding of limit, continuity, differentiation, and integration and a thorough background in techniques and

application of the calculus.

13. Knowledge of Discrete Mathematics. Candidates apply the fundamental ideas of discrete mathematics in the formulation and solution of problems.

14. Knowledge of Data Analysis, Statistics and Probability. Candidates demonstrate an understanding of concepts and practices related to data analysis, statistics, and probability.

15. Knowledge of Measurement. Candidates apply and use measurement concepts and tools.

NSTA Standards for Science	1	2	3	4	5	6	7	8	9
Required Courses Offered by EDUTL									
Pre-major content courses	B-A								
EDUTL 5721 – STEM Methods I			B			B			B
EDUTL 5722 – STEM Methods II		I	I						
EDUTL 5741 – Learn Cog STEM					B				
EDUTL 5742 – STEM Curr & Plan				B		B	B		
EDUTL 5743 – Reach ALL Stud STEM	Meets state requirement								
EDUTL 5744 – Tech Used in STEM					B				
EDUTL 5745 - Intro Assess STEM								B	
EDUTL 5746 – Assess STEM II: TPA								A	
EDUTL 4189- Adv Fld Exp (Urban)					I				
EDUTL 4189- Adv Fld Exp (Suburb)					I				
EDUTL 5195 – Seminar					I				
EDUTL 5191- Sprvsd Stdnt Tchng Internship					A				
EDUTL 5195- Rflectve Seminar					A				

1. NSTA Standards

Content. Teachers of science understand and can articulate the knowledge and practices of contemporary science. They can interrelate and interpret important concepts, ideas, and applications in their fields of licensure; and can conduct scientific investigations. To show that they are prepared in content, teachers of science must demonstrate that they

- (a) understand and can successfully convey to students the major concepts, principles, theories, laws, and interrelationships of their fields of licensure and supporting fields as recommended by the National Science Teachers Association
- (b) understand and can successfully convey to students the unifying concepts of science delineated by the National Science Education Standards;
- (c) understand and can successfully convey to students important personal and technological applications of science in their fields of licensure;
- (d) understand research and can successfully design, conduct, report and evaluate investigations in science
- (e) and understand and can successfully use mathematics to process and report data, and solve problems, in their field(s) of licensure.

2. Nature of Science. Teachers of science engage students effectively in studies of the history, philosophy, and practice of science. They enable students to distinguish science from nonscience, understand the evolution and practice of science as a human endeavor, and critically analyze assertions made in the name of science. To show they are prepared to teach the nature of science, teachers of science must demonstrate that they:

- (a) understand the historical and cultural development of science and the evolution of knowledge in their discipline;
- (b) understand the philosophical tenets, assumptions, goals, and values that distinguish science from technology and from other ways of knowing the world;
- (c) engage students successfully in studies of the nature of science including, when possible, the critical analysis of false or doubtful assertions made in the name of science

3. Inquiry. Teachers of science engage students both in studies of various methods of scientific inquiry and in active learning through scientific inquiry. They encourage students, individually and collaboratively, to observe, ask questions, design inquiries, and collect and interpret data in order to develop concepts and relationships from empirical experiences. To show that they are prepared to teach through inquiry, teachers of science must demonstrate that they:

- (a) understand the processes, tenets, and assumptions of multiple methods of inquiry leading to scientific knowledge;
- (b) engage students successfully in developmentally appropriate inquiries that require them to develop concepts and relationships from their observations, data, and inferences in a scientific manner.

4. Issues. Teachers of science recognize that informed citizens must be prepared to make decisions and take action on contemporary science- and technology-related issues of interest to the general society. They require students to conduct inquiries into the factual basis of such issues and to assess possible actions and outcomes based upon their goals and values. To show that they are prepared to engage students in studies of issues related to science, teachers of science must demonstrate that they:

- (a) understand socially important issues related to science and technology in their field of licensure, as well as processes used to analyze and make decisions on such issues;
- (b) engage students successfully in the analysis of problems, including considerations of risks, costs, and benefits of alternative solutions; relating these to the knowledge, goals and values of the students.

5. General Skills of Teaching. Teachers of science create a community of diverse learners who construct meaning from their science experiences and possess a disposition for further exploration and learning. They use, and can justify, a variety of classroom arrangements, groupings, actions, strategies, and methodologies. To show that they are prepared to create a community of diverse learners, teachers of science must demonstrate that they

- (a) vary their teaching actions, strategies, and methods to promote the development of multiple student skills and levels of understanding;
- (b) successfully promote the learning of science by students with different abilities, needs, interests, and backgrounds;
- (c) successfully organize and engage students in collaborative learning using different student group learning strategies;
- (d) successfully use technological tools, including but not limited to computer technology, to access resources, collect and process data, and facilitate the learning of science;
- (e) understand and build effectively upon the prior beliefs, knowledge, experiences, and interests of students; and
- (f) create and maintain a psychologically and socially safe and supportive learning environment.

6. Curriculum. Teachers of science plan and implement an active, coherent, and effective curriculum that is consistent with the goals and recommendations of the National Science Education Standards. They begin with the end in mind and effectively incorporate contemporary practices and resources into their planning and teaching. To show that they are prepared to plan and implement an effective science curriculum, teachers of science must demonstrate that they:

- (a) understand the curricular recommendations of the National Science Education Standards, and can identify, access, and/or create resources and activities for science education that are consistent with the standards;
- (b) plan and implement internally consistent units of study that address the diverse goals of the National Science Education Standards and the needs and abilities of students.

7. Science in the Community. Teachers of science relate their discipline to their local and regional communities, involving stakeholders and using the individual, institutional, and natural resources of the community in their teaching. They actively engage students in science- related studies or activities related to locally important issues. To show that they are

prepared to relate science to the community, teachers of science must demonstrate that they:

- (a) identify ways to relate science to the community, involve stakeholders, and use community resources to promote the learning of science;
- (b) involve students successfully in activities that relate science to resources and stakeholders in the community or to the resolution of issues important to the community.

8. Assessment. Teachers of science construct and use effective assessment strategies to determine the backgrounds and achievements of learners and facilitate their intellectual, social, and personal development. They assess students fairly and equitably, and require that students engage in ongoing self-assessment. To show that they are prepared to use assessment effectively, teachers of science must demonstrate that they:

- (a) use multiple assessment tools and strategies to achieve important goals for instruction that are aligned with methods of instruction and the needs of students;
- (b) use the results of multiple assessments to guide and modify instruction, the classroom environment, or the assessment process;
- (c) use the results of assessments as vehicles for students to analyze their own learning, engaging students in reflective self-analysis of their own work.

9. Safety and Welfare. Teachers of science organize safe and effective learning environments that promote the success of students and the welfare of all living things. They require and promote knowledge and respect for safety, and oversee the welfare of all living things used in the classroom or found in the field. To show that they are prepared, teachers of science must demonstrate that they:

- (a) understand the legal and ethical responsibilities of science teachers for the welfare of their students, the proper treatment of animals, and the maintenance and disposal of materials;
- (b) know and practice safe and proper techniques for the preparation, storage, dispensing, supervision, and disposal of all materials used in science instruction;
- (c) know and follow emergency procedures, maintain safety equipment, and ensure safety procedures appropriate for the activities and the abilities of students;
- (d) treat all living organisms used in the classroom or found in the field in a safe, humane, and ethical manner and respect legal restrictions on their collection, keeping, and use.



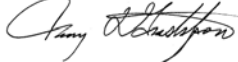
4120 Smith Laboratory
174 W. 18th Avenue
Columbus, OH 43210

Phone (614) 292-6736
Fax (614) 292-5678

artsandsciences.osu.edu

September 9, 2010

To: Sandra A. Stroot, Senior Associate Dean

From: Terry L. Gustafson 

Re: Science and Mathematics Education, Bachelor of Science in Education

This memo is to indicate support from Arts and Sciences for the proposed undergraduate major in Science and Mathematics Education leading to a Bachelor of Science in Education (B.S.Ed.) in the College of Education and Human Ecology (EHE).

The proposal was constructed with significant input from the content areas in Arts and Sciences. The proposal developers have addressed the majority of the concerns expressed by the content areas. We do not anticipate at this time any difficulties in accommodating the students pursuing the B.S.Ed. in the content area courses in Arts and Sciences. We understand that some of the details associated with semester courses are not yet completely worked out and that the proposal contains the best estimate of what those courses might be. We are confident that the close working relationship we have established in constructing this proposal will permit us to finalize these last few details once all the semester conversion in the content areas has been completed.

We also understand that EHE will maintain the existing M.Ed. pathway for students who complete an undergraduate degree in the content area in Arts and Sciences. The M.Ed. has been a valuable asset to our students as they prepare for careers in education and provides an important alternative for students who decide to change their career path while pursuing a content area degree.

We look forward to working with you in the future on education degrees in other content areas. Please let me know if you require any additional information.