Department of Science, Technology, Engineering, and Mathematics (STEM) Education
Education Sciences Interdisciplinary Ph.D. - STEM Education Strand
Doctoral Program Plan and Curriculum Sheet

Please TYPE

Name					
Email					
Address					
	Street		**City**	**State**	**Zip**
Phone					
	Home	**Work**	**Cell/Other**	**Semester of Admission to Doctoral Program**	

Background: Are you a certified K-12 teacher?

☐ **Yes** ☐ **No**

Are you interested the Rank I certification option?

☐ **Yes** ☐ **No**

Professional Goals: Briefly describe the professional growth goals you hope to meet in pursuing the STEM Education Doctoral Degree.

Program Goals: In helping you develop your own professional goals, the STEM Strand of the Education Sciences Interdisciplinary Ph.D. program will focus on helping you:

1. Connect theory and practice through reflection, teaching, scholarship, and STEM educational action research.
2. Design authentic, innovative, project-based learning experiences that consider students of diverse backgrounds and perspectives.
3. Explore uses of appropriate assessments and technological tools to enhance STEM teaching and learning.
4. Develop communication skills through multiple forms of discourse and written, oral, and on-line narratives.
5. Explore and implement innovative and engaging curricula, especially around the Kentucky Core Academic Standards and College and Career Readiness.
6. Develop, implement, and assess Academic Standards, instructional practices, and College and Career Readiness, geared towards increasing student achievement.

Program Identifiers:

College:	GS
Major:	EDSC, (STEM Ed strand abbrev: PHDEDSCSED)
Degree:	PHD
CIP code:	13.0601

Education Sciences Required Coursework (minimum 12 credit hours)

Required coursework in the Education Sciences Interdisciplinary Program includes 12 credit hours in both quantitative and qualitative research methods. A minimum of three credit hours is required in both methodologies. Therefore, students may concentrate coursework in quantitative methods, qualitative methods, or both methodologies, earning a minimum of three credits in each methodology. Note that EDP/EPE 557 is a prerequisite course for ALL quantitative methods classes, but a course that does not count toward the EDI required coursework; EDP/EPE 557 will apply toward the required 12 credit hours outside STEM Education. Use the selections that follow to identify courses for the Education Science requirements.

Quantitative Methodology: Choose a minimum of one course from the following and/or other courses selected by the doctoral committee. (EDP/EPE 557 is a pre-requisite for all of the following courses)
(3 – 6 credit hours)

Course	Title	Term	Grade	Credits
EDP 656	Methodology of Education Research			3
EDP/ EPE 660	Research Design and Analysis in Education			3
EDP 707	Multivariate Analysis in Education Research			3
EPE 619	Survey Research Methods in Education: Education Data (Prerequisite: EDP/EPE 557 or permission of instructor)			3
EPE/ EDP 620	Topics and Methods of Evaluation			3
EPE/ EDP 621	Advanced Topics and Methods of Evaluation (Prerequisite: EDP/EPE 620 or SOC 622 or permission of instructor)			3
EPE 679	Multiple Measures in Education & Evaluation (Prerequisite: EDP/EPE 621 or permission of instructor)			3

Qualitative Methodology: Choose a minimum of one course from the following - additional courses may be selected by the doctoral committee (other course options might include SOC 680, SOC 681, SOC 682)
(3 – 6 credit hours)

Course	Title	Term	Grade	Credits
EPE 663	Field Studies in Educational Institutions			3
EPE 763	Advanced Field Studies			3
				3
				3
				3

Advanced Methodology Course: Choose a minimum of one course – to be selected by doctoral committee
(3 credits hours)

Course	Title	Term	Grade	Credits
				3
				3
				3

STEM Education Strand Required Coursework (minimum 36 credit hours)

The STEM Education Strand within the EDI program requires a minimum of Required STEM Education Core:
Choose a minimum of 5 courses
(15 credit hours)

Course	Title	Term	Grade	Credits
SEM 603	Curriculum and Instruction in STEM Education			3
SEM 620	Equity in STEM Education			3
SEM 706	Research in STEM Education			3
SEM 613	Effective Use of Technology for Modeling-Based Inquiry in STEM Education			3
History of Education (Select 1)				
SEM 604	History of STEM Education			3
SEM 701	History of Mathematics Education			3
EPE 651	(P-20) History of Education in the United States			3
EPE 653	History of Higher Education			3

Required STEM Methods Core: Choose a minimum of 3 courses
(9 credit hours)

Course	Title	Term	Grade	Credits
SEM 670	Advanced Studies in the Teaching of Elementary School Mathematics			3
SEM 674	Advanced Studies in Teaching Elementary School Science			3
SEM 675	See Blue Mathematics Clinic			3
SEM 704	Designing Project-Enhanced Environments in STEM Education			3
SEM 708	Engineering in STEM Education			3
SEM 770	Special Topics in STEM Education:			3
EPE 672	College Teaching and Learning			3
GS 699	Practicum for College Teaching			3

STEM Education Elective Courses: Choose a minimum of 2 courses in STEM Education.
(6 credit hours) [These 6 credits will be removed from program requirements in 2013-2014 academic year]
Doctoral committee may select additional courses based on student needs and program focus. Elective courses may not count double for elective and required STEM Education Core and STEM Education Methods requirements. See listing on attached document. Independent studies with a particular faculty member also may be included in elective coursework. All courses must be at the 500 level or higher.

Course	Title	Term	Grade	Credits
				3
				3

				3
				3

Electives Outside STEM Education: Choose a minimum of 3 courses.
(9 – 12 hours)
Outside elective credits may include courses in specific STEM content disciplines (i.e., science, technology, engineering, mathematics), STEM Education, Education, or other content disciplines. Doctoral committee may select additional electives based on student needs and program focus. Strong recommendations: **EPE 557, EPE 558**. *All courses must be at the 500 level or higher.*

Course	Title	Term	Grade	Credits
EDP/EPE 557	Gathering, Analyzing, and Using Educational Data			3
				3
				3
				3
				3
				3
				3
				3

Total Credit Hours	

48 credit hours required for Qualifying Exam
**30 credit hour minimum for Rank I Certification*

Doctoral Committee Members

The doctoral committee should be selected by the time the student completes 18 credit hours in the program.

Name	Role	Department	Graduate Faculty Status	Program Approval Signature	Signature Date
	Chair				
	member				
	member				
	member				

Student Signature Date

Program Progression

Activity	Date/Semester	Other	Advisor Signature, Date
Semester Admitted			
Semester Coursework Initiated			
Qualifying Exam		☐ Pass ☐ Fail	
Dissertation Approval			
Dissertation Defense		☐ Pass ☐ Fail	

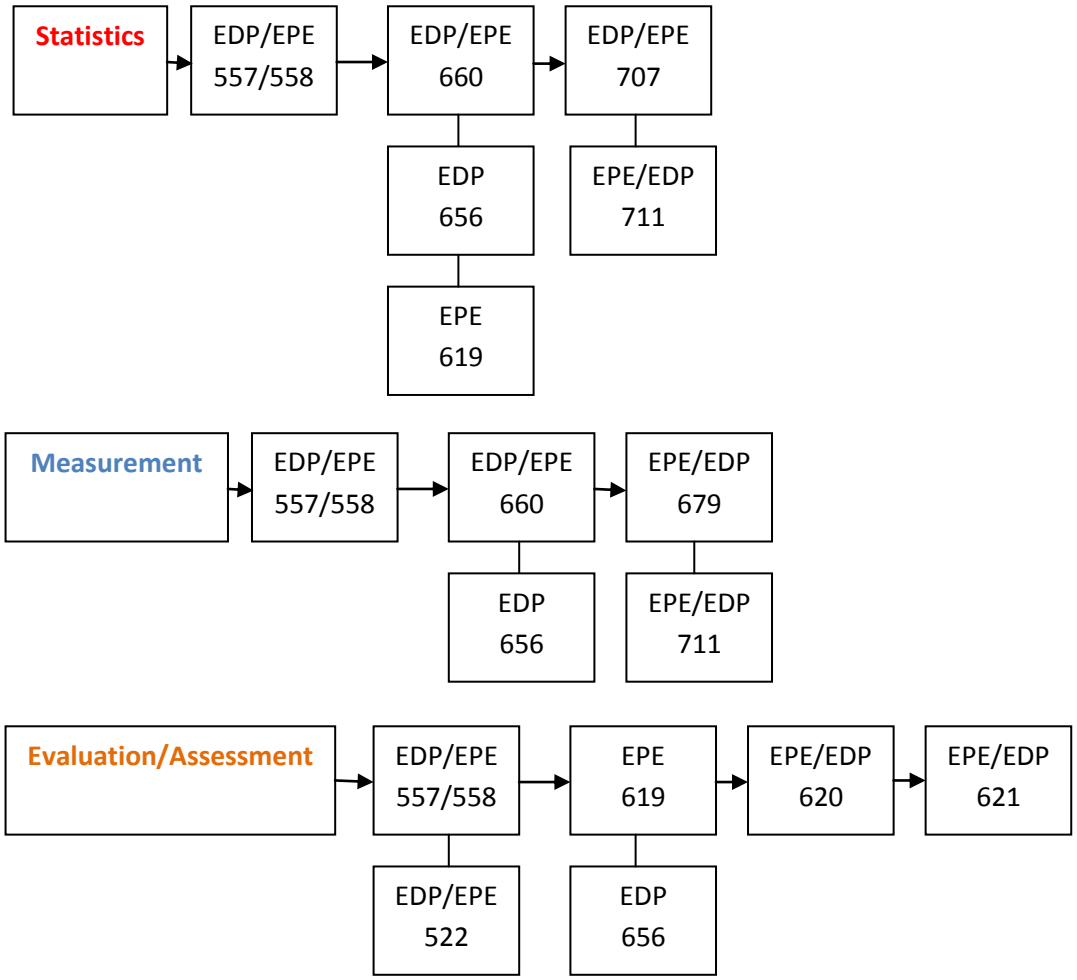
Recommendations for STEM Education Electives (minimum 6 credit hours)

Recommendations for Electives Outside STEM Education (minimum 6 credit hours)

Course	Title	Credits
SEM 670	Advanced Elementary Mathematics Methods	3
EPE/EDP 557	Gathering, Analyzing, and Using Educational Data	3
EPE/EDP 558	Gathering, Analyzing, and Using Educational Data II	3
SEM 704	Designing Project-Enhanced Environments	3
ME 599	Systems Thinking for Sustainability	3
SEM 708	Engineering in STEM Education	3
EDP 610	Theories of Learning in Education	3
SEM 770	Special Topics in STEM Education	3
EDP 611	Human Cognitive Learning	3
SEM 781	Independent Study in STEM Education (must pre-arrange project with instructor)	3
EDP 612	Development of Creativity and Critical Thinking	3
EDC 543	Digital Game Based Learning and Instruction	3
	Content specific courses – see your advisor for recommendations	3
		3

Suggested Quantitative Flowchart for Students Focusing on Quantitative Methods

(Course descriptions available at http://www.uky.edu/Registrar/bulletinCurrent/courses/EDP.pdf and http://www.uky.edu/Registrar/bulletinCurrent/courses/EPE.pdf)



EDP/EPE 522: Educational Tests and Measurement

EDP/EPE 557: Gathering, Analyzing, and Using Educational Data I

EDP/EPE 558: Gathering, Analyzing, and Using Educational Data II

EPE 619: Survey Research Methods

EPE/EDP 620: Topics and Methods of Evaluation

EPE/EDP 621: Advanced Topics and Methods of Evaluation

EDP 656: Methodology of Educational Research

EDP/EPE 660: Research Design and Analysis in Education

EDP/EPE 679: Introduction to Measurement Theory and Techniques

EDP/EPE 707: Multivariate Analysis in Educational Research

EDP/EPE 711: Advanced Quantitative Methods

Note. 711 options include: Multilevel Modeling (MLM/HLM); Rasch, Item Response Theory (IRT), Structural Equation Modeling, Longitudinal Data Analysis, Meta-Analysis, Data Mining, Working with Large National Datasets. If you have more questions, please contact Dr. Kelly Bradley (kdbrad2@uky.edu) in EPE or Dr. Michael Toland (toland.md@uky.edu) in EDP.