

Graduate Council Curriculum Subcommittee
March 19, 2008
1:30 p.m., 327 MH

Agenda

1. Welcome and call to order
2. Approval of the minutes from the 03/05 meeting
3. Inactivation of the graduate certificate in Materials Failure Analysis, ECS
4. Revisions to the EdD in Education, ED
5. Review of courses and special topics
6. Announcements and adjournment. Next meeting: April 1, MH 243.

March 3, 2008

Dr. Patricia Bishop
Vice Provost and Dean of Graduate Studies
Division of Graduate Studies
University of Central Florida

Re: Elimination of Graduate Certificate in Materials Failure Analysis

Dear Dr. Bishop,

This letter is to request the elimination of the Graduate Certificate in Materials Failure Analysis. This request has been initiated by the graduate faculty of the Materials Science and Engineering (MSE) program, and approved by the appropriate graduate curriculum committees of the Department of Mechanical, Materials, and Aerospace Engineering and by the College of Engineering and Computer Science.

In recent years this graduate certificate program has suffered from both a lack of enrollment and the (unfortunately related) unwillingness of the materials program faculty to offer the four courses required for the certificate program on more than an “occasional” basis. The last student in the program was able to complete the certificate requirements in Spring of 2007 only due to the substitution of independent study courses that were designed to specifically replace the otherwise unavailable required courses of the Graduate Certificate in Materials Failure Analysis. At this time the MSE faculty request that this certificate program be formally discontinued, to avoid the potential misunderstanding that may occur with the continued catalog listing of this program. There are currently no students active in the program and none of the program’s required courses have been offered within the last two years.

Regards,

Dr. Kevin R. Coffey
Materials Science and Engineering Program Coordinator
Associate Professor
University of Central Florida

**TO: Patricia Bishop, Vice-Provost and Dean of Graduate Studies
Graduate Curriculum Subcommittee**

FROM: College of Education
[Contact: Dr. David Boote, 3-4160; dboote@mail.ucf.edu]

RE: Proposed Curriculum Change – Ed.D. in Education program

DATE: February 13, 2008

This memorandum summarizes the proposed changes to the Ed.D. in Education program.

1. Change to prerequisites

- **Add** EDF 6432 Measurement and Evaluation in Education

2. Change the core curriculum to focus on research, evaluation, and design:

- **Add** seven existing courses that focus on research, evaluation, and design.
- **Remove** four courses and use them instead for students specializing in Curriculum and Instruction

Old “Curriculum & Instruction” Core	Proposed “Education” Core
EDF 7232 Analysis of Learning Theories in Instruction	EDF 6467 Mixed Methods for Evaluation in Educational Settings
EDG 7221 Advanced Curriculum Theory	EDF 7916 Analysis and Synthesis of Educational Literature
EDG 7325 Models of Teaching and Instructional Theory	EDG 6285 Evaluation of School Programs
EDG 7692 Issues in Curriculum	IDS 7502 Case Studies in Research Design
	IDS 7500 Seminar in Educational Research
	IDS 7501 Issues and Research in Education
	IDS 7938 Research Cluster Seminar (taken twice)

3. Update research curriculum and integrate into core curriculum.

4. Update specializations:

Old specialization	Proposed specialization

Minimum 45 credit hours total	Minimum 15 credit hour total
Transfer up to 30 credit hours from masters degree	Minimum 9 credit hours at 7000 level
Minimum 9 credit hours “curriculum & instruction”	
Minimum 9 credit hours “cognate”	
Minimum 3 credit hours “educational foundations or leadership”	

5. **Change candidacy exams** from three exams to one exam.

6. **Change dissertation hours** from a minimum of 21 credit hours to a minimum of 15 credit hours.

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Proposed revisions to the Ed.D. in Education program

Rationale:

The Ed.D. in Education degree is one of the two oldest doctoral degrees at UCF¹. The current program differs very little from the original program approved in 1982, except for the accretion of numerous policies added over the years. Introduced before any of UCF's PhD degrees, it has long served the College of Education and the rest of UCF as both a research-oriented and a practice-oriented degree. For example, the original approved program allowed students to specialize in any area that UCF offered a masters degree in any college, and allowed applicants to enter the program without a prior degree in Education. As a result, the original approved degree was designed to be very flexible with only a small core of required classes in curriculum, instruction, and learning theory. With the introduction of Ph.D. degrees across the University and within the College of Education over the last two decades, the time has come to clearly differentiate the Ed.D. from the Ph.D. in Education and to focus the Ed.D. degree as a practice-oriented doctoral degree.

In addition, two trends in education research and practice, in addition to perennial problems within the program itself, are influencing the revisions of the program. First, whereas twenty-five years ago most research and practice in education attempted to cross subject-areas, age-levels, and learning-contexts, today we see much more differentiation (for example, compare the 3rd Edition of the *Handbook of Research on Teaching*, published in 1986, with the 4th Edition published in 2001). Indeed, some have recently argued that doctoral programs across the US have become too specialized and if anything those programs need to inculcate a broader understanding of issues and trends in Education (Richardson, 2003; Schoenfeld, 1999). UCF's Ed.D. in Education program missed the trend toward over-specialization and continued to maintain a very broadly-focused core curriculum. The proposed program tries new methods to find an appropriate balance between the specialized knowledge needed to do appropriately sophisticated research and the broad knowledge and skills needed to lead and sustain systemic improvement of education.

Second, over the last decade the field of education has experienced a significant shift in thinking about the roles of the doctorate within the field. First in the UK and Australia and more recently in the US, many universities have moved to clearly differentiate their Ph.D. programs modeled on doctorates in the social and behavioral sciences from their practice-oriented Ed.D. degrees. The latter programs often try to model themselves, at least in part, on professional doctorates in other fields such as the M.D. or the J.D. (Shulman, Golde, Bueschel, & Garabedian, 2006). While the analogy is far from perfect and we are probably many years from achieving consensus on the conceptual, normative and practical differences between the degrees, there are nevertheless a variety of interesting programs emerging at well-respected universities that provide some guidance as we make this transition. In addition, UCF's College of Education was recently invited

¹ Until 2006 this program was called the Ed.D. in Curriculum and Instruction. For ease of reading, throughout this document we will refer to the program simply as the Ed.D. program. However, none of the proposed revisions will affect the other UCF Ed.D. program in Educational Leadership.

to join the *Carnegie Project on the Education Doctorate* with a number of these schools², ensuring that our programs continue to be guided by the research and emerging best practices in these programs.

Finally, the program evaluation conducted last year helped us to recognize and address several problems with the current program design. While the program continues to enjoy a very good reputation among its numerous alumni (over 300), as well as the local school systems and across the state, the evaluation surfaced systemic problems resulting in a high average degree completion time, lack of effective advising, and students moving into candidacy who were less-than-fully prepared to complete a dissertation. Most of these problems are a direct or indirect result of the very flexible design of the original program. Previous piecemeal attempts to address these and other problems have resulted in a tyranny of overly-complicated policies and procedures that frustrate program faculty, staff, and students. In addition, the misplaced focus in the program has led us to reject otherwise very capable educators who might do very well in the program but were rejected because they did not have a clearly articulated research program before entering. The redesigned program will create a program that has more structure to guide students as they move through the program and increases the likelihood that they will enter candidacy able to complete their dissertation in a timely way.

Taken together, the trends in educational research and scholarship, changing conceptions of the Ed.D., and the problems identified in the program evaluation led us to realize that achieving the original intent of the program required several important changes of the curriculum.

Goals of revision:

With this background in mind, the proposed revisions to the Ed.D. in Education program serve to accomplish several goals:

1. Redesigning the core and research requirements of the existing program will serve several goals:
 - a. Focus on skills and knowledge required of all educators, including:
 - i. Evaluating the effectiveness of educational programs and identifying impediments to improving those program;
 - ii. Systematically analyzing educational research and scholarship to identify research-based practices;
 - iii. Developing and designing effective educational practices and materials
 - b. Provide a more coherent, well-focused program that will reduce the need for extensive advising while maintaining the flexibility that has been a key asset in this program

² CPED members include: University of Connecticut, University of Florida, University of Houston, University of Kansas, University of Kentucky, University of Louisville, University of Maryland, University of Missouri-Columbia, University of Nebraska-Lincoln, Northern Illinois University, University of Oklahoma, Penn State University, Rutgers University, University of Southern California, Vanderbilt University, University of South Florida, University of Vermont, Virginia Commonwealth University, Virginia Polytechnic Institute & State University, and Washington State University.

- c. Provide a sequence of educational experiences that will ensure that students who enter candidacy are well-prepared for the dissertation.
2. Reduce the minimum credit hours required in the program to bring it more into line with other doctoral programs across UCF.

The overall result will be a program that is better focused on the needs of practicing educators from a wide range of fields and specializations that is easier to understand for prospective students, program faculty, and administrators.

Strategies for accomplishing program goals:

Year one curriculum:

The focus of the first year of the Ed.D. program is to teach the students to read, analyze, evaluate, and synthesize educational research and scholarship at the level expected of doctoral students. In addition, while students are practicing these skills, they will be learning the literature in their field of study with an emphasis on research-based best practices and materials.

Semester	Course #	Title	Focus
Fall	IDS 7500	Seminar in Educational Research	Learn to read, analyze, and evaluate a variety of research and scholarship Begin to read the research and scholarship in their field Gain broad familiarity with other research and scholarship in education
Spring	EDF 7916	Analysis and synthesis of educational literature	Understand various approaches to systematic, thorough literature synthesis Learn the skills needed to perform a systematic, thorough literature synthesis
Summer	IDS 7938	Research cluster seminar	Complete a systematic literature synthesis in area of specialization

In addition, during year one, students should also complete one or two specialization courses. Whenever possible, the courses selected should focus on learning the research and scholarship, major research traditions and problems in their field.

Year two curriculum:

The focus of the second year of the Ed.D. program is to teach the students how to assess and evaluate the effectiveness of educational programs, practices, and materials in their field, and identify obstacles preventing improvement. In addition, students will continue learning research-based best practices in their specialization area and field specific methods and approaches to assessment and evaluation.

Fall	EDG 6285	Evaluation of school programs	Understand various forms and approaches to program assessment and evaluation
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			Systematically reviewing prior evaluation studies in their field of study
Spring	EDF 6467	Mixed methods for evaluation in educational settings	Practice various forms of collecting and analyzing qualitative and quantitative data for program evaluation Prepare a proposal to complete an evaluation of a program in their field
Summer	IDS 7938	Research cluster seminar	Complete the assessment and evaluation of an educational program

In addition, during year two, students should also complete one or two specialization courses. Whenever possible, the courses selected should focus on field specific assessment and evaluation methods, or review field specific research-based best practices and materials.

Year three:

The focus of the third year of the Ed.D. program is on enabling using what students learned in years one and two to develop and design educational programs, practices, and materials that address significant problems in their field. These educational practices can include curricula, instructional methods, policy and policy implementation, assessment and assessment systems. By using more sophisticated approaches to designing educational practices, and grounding the design of educational practices on prior research and scholarship, and the challenges of a specific educational program, students should be able to make significant practical contributions to practice in their field.

Fall	IDS 7501	Issues and research in education	Understand various methods of developing, designing, and testing educational practices. Begin developing, designing, and testing an educational practice that addresses a significant problem in their field of specialization.
Spring	EDF 6467	Case studies in educational research	Complete development, design, and testing of their educational practice, culminating in a showcase. Complete dissertation proposal.

In addition, students will complete any remaining specialization courses. Whenever possible, those courses should focus on field specific methods and approaches to designing educational practices, and on preparing students to write their dissertation proposal.

Finally, during the Spring and Summer semesters of year three, students must complete their candidacy exams and defend their dissertation proposals.

Year four:

Students will spend their fourth year in the program completing their dissertation.

Ongoing program development and evaluation:

The approval of this proposed program revision does not end the development process of the program.

Ongoing development of Core classes

Developing pedagogies appropriate for professional doctoral degrees is a major area of research and development around the world at the moment, not least in the field of Education (Golde, 2007; Walker, Golde, Jones, Bueschel, & Hutchings, 2008). A major criticism of several recent reviews of doctoral education is that we continue to use the same forms of pedagogy used in high school and undergraduate degrees, especially an inappropriately heavy emphasis on writing term papers. When new pedagogical methods are employed, little attention is given to either the alignment of those pedagogies with the goals of a professional doctoral degree and little help is given to the students to learn how to succeed with those pedagogies to enable them to learn what we intend.

As we continue to develop the revised Ed.D. program, we will be paying a great deal of attention to the instructional methods, forms of student activity in and out of class, assignments, and grading to ensure that they are aligned with the program goals. Each of the core classes will be designed by a committee of program faculty, and the implementation of the classes will be monitored by the same committee.

Specializations

While the concept of the specializations and the courses in them are already approved, the revisions of the Ed.D. program will try to address one of the major weaknesses of the existing program. Too often, specializations have been mere collections of courses. The greatest challenge, understanding the relationships among the courses and synthesizing what they learned, has been left to those least capable of doing it – the students (Britzman, 2003). In addition, too often students in the program have not seen the connections among what they are learning in the core, the research, and the specialization classes, and their experience of the program is fragmented.

To address these problems, each specialization will be required to develop a template of required and recommended courses, a list of core readings and major authors in the field, a list of exemplary recent dissertation in the field, and a list of perennial and emerging problems in the field. These lists can then be used by the students to ensure that their readings and assignments in the core classes are aligned to the greater goals of both the program and their specialization, hopefully leading to a greater sense of coherence and continuity in the program.

Focal events and signature pedagogies

Beyond coursework, successful professional doctoral programs create a sense of community aligned with the professional goals of the students and program faculty (Walker, *et al*, 2008) and make extensive use of ‘signature pedagogies’ that engage students in emotionally engaging and relatively-authentic activities with quasi-public assessments (Shulman, 2005). The former goal is especially challenging for a relatively

large doctoral program such as the Ed.D. program. In this revised program, a mandatory annual program research conference, during which all students must present their annual projects, will serve both of these purposes.

The first year project, a completed synthetic literature review, will focus students understanding of which educational practices are supported by research, which are not, and where additional research is needed. In addition, these projects will help students to develop a more substantial understanding of the oft misused phrase “research-based practice” (Katzenmeyer, 2007, personal communication), including the value-laden nature of such claims (Hammersley, 2007). After two courses focused on helping students to read, analyze, evaluate, and synthesize educational research, they will write their synthesis review of a topic of professional interest in their area of specialization. To guide students through this process, program faculty will develop assessment rubrics to clearly delineate for students the expectations of those reviews (Lovitts, 2007, Maki & Borkowski, 2006). Students will present their literature reviews at an annual program research conference and, after addressing any concerns expressed by reviews, publish the finished reviews on the program website for future students and the public to use. The added emotional engagement created by the public presentation and publication will encourage students to move towards forms of writing and thinking expected of doctoral students. In addition, students who are unable to meet the minimum expectations specified by the assessment rubric even after feedback, remediation and revision, will be dismissed from the program.

A similar pattern will continue for projects in years two and three, and the dissertations. The year two projects will be program evaluations and assessment, and the year three projects will be designing educational programs, practices and materials. Again, program faculty will develop assessment rubrics specific to each project and the dissertation. And, again, these completed projects will be presented at the annual conference and, after feedback and revisions, published on the program website. The annual conference will be a significant step towards developing a professional community in the program and encouraging communication among students with related interested across the cohorts. In addition, the publication of the annual projects will create a cumulative record of student work in the program.

Ongoing individual and program assessment

These rubric-based assessments of the annual projects will provide very useful data about the effectiveness of various program elements and the overall program effectiveness, especially when combined with the data already being collected for Institutional Effectiveness. These data will be reviewed annually to assess each student’s performance during the year and cumulatively in the program, and compared to admissions criteria to assess the appropriateness of the admissions process. Aggregate achievement data will be analyzed in several ways to identify aspects of the program that are working well and areas that need improvement.

Market analysis:

The revisions to the program will enable us to maintain the size of the program and improve our ability to serve the needs of those students while improving the quality of the program. In addition, by decreasing time-to-degree we expect to increase the number of graduates from the program every year.

Increasing the size of the Ed.D. program is not currently a goal of the program. The current (Fall 2007) headcount in the Ed.D. in Education is 102 students, down from the all-time high of 136 students in Spring 2004. At that enrollment level with the existing program design, program faculty found we were unable to effectively offer required courses and supervise dissertation research. We took several steps to regulate the program admissions, including limiting admission to the program and offering core classes only once-per-year.

In addition, applications to the program remain at a healthy level. Last year 29 students applied for the program, of whom 10 were admitted; twice that number met the admissions criteria. We expect to have high demand for the program and a healthy applicant pool for the foreseeable future.

For the next few years, our goal is to improve the quality of students admitted into the program, improve the quality of their experiences during the coursework phase, and improve their ability to complete the program successfully in a timely way.

Implementation:

The proposed changes in the program should go into effect starting Fall 2008. There is no need for Graduate Studies to track students in new areas of specialization.

Affect on other units:

The proposed changes should have no foreseeable effects on other units in the University.

Works cited:

- Britzman, D. (2003). *Practice makes practice: A critical study of learning to teach* (Rev.). Albany, NY: SUNY Press.
- Golde, C.M. (2007). Signature pedagogies in doctoral education: Are they adaptable to the preparation of education researchers? *Educational Researcher*, 36(8), 344-351.
- Hammersley, M. (2007). *Educational research and evidence-based practice*. London: Open University Press.
- Lovitts, B.E. (2007). *Making the implicit explicit: Creating performance expectations for assessing the outcomes of doctoral education*. Sterling, VA: Stylus.
- Maki, P.L., & Borkowski, N. A. (Eds.) (2006). *The assessment of doctoral education: Emerging criteria and new models for improving outcomes*. Sterling, VA. Stylus.
- Richardson, V. (2003). The Ph.D. in Education. *Carnegie Essays on the Doctorate*. Menlo Park, CA: Carnegie Foundation for Education.
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- Schoenfeld, A. H. (1999). The core, the canon, and the development of research skills. In E. C. Lagemann & L. S. Shulman (Eds.), *Issues in education research: Problems and possibilities* (pp.166–223). San Francisco: Jossey-Bass.
- Shulman, L. S. (2005). Signature pedagogies in the professions. *Daedalus*, 134(3), 52-59.
- Shulman, L.S., Golde, C. M., Bueschel, A.C., & Garabedian, K.J. (2006). Reclaiming Education's doctorates: A critique and a proposal. *Educational Researcher*, 35(3), 25-32.
- Walker, G.E., Golde, C.M., Jones, L., Bueschel, A.C., & Hutchings, P. (2008). *The formation of scholars: Rethinking doctoral education for the twenty-first century*. San Francisco, CA: Jossey-Bass & The Carnegie Foundation for the Advancement of Teaching.
- Wittrock, M.C. (Ed.) (1986). *Handbook of research on teaching*(3rd Ed.). New York: Macmillan.

Current program:

Doctor of Education in Education

The Doctor of Education (Ed.D.) program provides advanced study for the educators to gain expertise in a subfield of education and the ability to do independent research.

Total Hours Required for Ed.D.—Minimum of 93 credit hours beyond the master's degree

Prerequisites—12 Credit Hours

- EDG 6223 Curriculum Theory and Organization (3 credit hours)
- EDF 6259 Learning Theories Applied to Classroom Instruction and Management (3 credit hours)
- EDF 6401 Statistics for Educational Data (3 credit hours) (or equivalent)
- EDF 6481 Fundamentals of Graduate Research in Education (3 credit hours)

Prerequisite classes do not count toward minimum program hours.

Core—12 Credit Hours

- EDF 7232 Analysis of Learning Theories in Instruction (3 credit hours)
- EDG 7221 Advanced Curriculum Theory (3 credit hours)
- EDG 7325 Models of Teaching and Instructional Theory (3 credit hours)
- EDG 7692 Issues in Curriculum (3 credit hours)

Notes about Core classes:

1. EDF 6259 is a prerequisite to EDF 7232.
2. EDF 6223 is a prerequisite for both EDF 7221 and EDG 7325.
3. EDF 7232, EDG 7221, and EDG 7235 are all prerequisites to EDF 7692.

All core courses and the core examination must be completed in the first six semesters of enrollment in the doctoral program.

Specialization Area—45 Credit Hours Minimum

- Includes selected courses in Curriculum, Instruction, Instructional Technology, Foundations, Educational Leadership, and Community College

Research and Data Analysis—6 Credit Hours

- EDF 7403 Quantitative Foundations of Educational Research (3 credit hours)

- EDF 7463 Analysis of Survey, Record, and Other Qualitative Data (3 credit hours)

Notes about Research and Data Analysis classes:

1. EDF 6401 and EDF 6481 are both prerequisite for EDF 7403.
2. EDF 7403 is prerequisite for EDF 7463.
3. Students who complete both EDF 7403 and EDF 7463 with a College of Education Research faculty member with a grade of "B" or better may complete the Research Competency form in place of the Research Exam.

Dissertation—21 Credit Hours Minimum

Doctoral students must present a prospectus for the dissertation to the doctoral adviser, prepare a proposal and present it to the dissertation committee, and defend the final research submission with the dissertation committee.

Candidacy

To enter candidacy for the Ed.D., students must have an overall 3.0 grade point average on all graduate work included in the planned program and pass all required examinations.

Candidacy Examinations

- Examinations must be completed prior to admission to candidacy.
- Examinations will be scheduled near the tenth week of the fall and spring semesters. Summer examinations will be scheduled for the sixth week of the term.
- All Ed.D candidates will be required to write examinations. Students must be enrolled in the university during the semester an examination is taken.
 - Specialization/Teaching Field—5-hour examination
 - Curriculum/Instruction Core—3-hour examination
 - Research/Data Analysis—3-hour examination

Proposed revisions:

Doctor of Education in Education

The Doctor of Education (Ed.D.) program in Education is designed for experienced, practicing educators and practitioners who wish to gain advanced skills in:

1. Evaluating the effectiveness of educational and clinical programs and identifying impediments to program improvement;
2. Analyzing and synthesizing educational and clinical research and scholarship to identify research-based practices;
3. Developing and designing effective educational and clinical practices and materials.

The Doctor of Education program culminates with a major project, the dissertation, in the student's area of specialization.

Total Hours Required for Ed.D.—Minimum of 54 credit hours beyond the master's degree

Prerequisite Core—15 Credit Hours

Students entering the Ed.D. in Education program with a graduate degree in a field other than education or those whose masters degree did not include the prerequisite core classes must complete the prerequisite core classes they have not taken. This 15-credit-hour core of education foundations courses may be satisfied by a student's prior equivalent course work, provided such course work has been satisfactorily completed at a regionally accredited university either at the undergraduate or graduate level.

Students without some or all of the foundation courses should apply to the Ed.D. in Education program of their choice in either spring or summer prior to beginning the Ed.D. in the fall semester. Applicants without this prior foundational coursework may be admitted in "probational" status and will only be converted to "regular" admission status upon satisfactory completion of the prerequisite core.

The prerequisite core is defined by the course requirements listed below. Alternative prerequisite courses may be used with the approval of specialization faculty and program coordinator:

- EDG 6223 Curriculum Theory and Organization (3 credit hours)
- EDF 6259 Learning Theories Applied to Classroom Instruction and Management (3 credit hours)
- EDF 6401 Statistics for Educational Data (3 credit hours)
- EDF 6432 Measurement and Evaluation in Education (3 credit hours)
- EDF 6481 Fundamentals of Graduate Research in Education (3 credit hours)

Prerequisite core classes do not count toward minimum program hours.

Core—24 Credit Hours

- EDF 6467 Mixed Methods for Evaluation in Educational Settings (3 credit hours)
- EDF 7916 Analysis and Synthesis of Educational Literature (3 credit hours)
- EDG 6285 Evaluation of School Programs (3 credit hours)
- IDS 7502 Case Studies in Research Design (3 credit hours)
- IDS 7500 Seminar in Educational Research (3 credit hours)
- IDS 7501 Issues and Research in Education (3 credit hours)
- IDS 7938 Research Cluster Seminar (6 credit hours)

Specialization Area—15 Credit Hours Minimum

- Students must select a specialization area, for example: Curriculum & Instruction, Counselor Education, Instructional Technology, Math Education, or another area in the College of Education that offers doctoral level course work.
- The specialization course work must include a minimum of 9 credit hours at the 7000 level. Specialization courses must be approved by the student's advisor and the program coordinator by the end of the student's first semester in the program.
- Additional specialization course work may be required prior to entering candidacy to ensure that a student has adequate background knowledge and research skills to successfully complete their dissertation.
- Applicants are encouraged to contact faculty members in the area of specialization prior to applying. Additional information about specialization areas can be found on the program website: <http://education.ucf.edu/edd/>

Example I: Curriculum & Instruction

The Curriculum & Instruction option provides students with a broad understanding of the factors affecting education and approaches to addressing systemic problems. For example, a student interested in focusing on improving the curriculum at her school and in her school district might work with her advisor to construct the following specialization:

- EDF 7232 Analysis of Learning Theories in Instruction (3 credit hours)
- EDG 7221 Advanced Curriculum Theory (3 credit hours)
- EDG 7692 Issues in Curriculum (3 credit hours)
- ESE 6235 Curriculum Design
- EDG 6224 Curriculum Policy Analysis

A student interested in this area of specialization might have also chosen courses in one of the following areas: instruction, learning theory, social foundations of education, or subject specific courses that focus on curriculum such as science education or social studies education.

Example II: Instructional Technology

The Instructional Technology specialization prepares students for teaching, research and instructional design in primarily higher education and corporate settings. Students in this specialization often focus on applying research-based pedagogies to the use of emerging technologies for adult learner. For example, a student with this interests seek approval to substitute IDS 6504 Adult Learning for the prerequisite class EDF 6259 Learning Theories Applied to Classroom Instruction and Management, and might request to substitute EME6613 Instructional Systems Design for EDG 6223 Curriculum Theory and Organization. Their advisor might then recommend the following specialization classes:

- IDS 6503 International Trends in Instructional Systems (3 credit hours)
- EME 7634 Advanced Instructional Systems Design (3 credit hours)
- EME 7942 Doctoral Internship in Educational Technology (3 credit hours)
- EDF 7232 Analysis of Learning Theories in Instruction (3 credit hours)
- EME6062 Research in IT

And either EME6607 Planned Change or EME6705 Administration of IS

For more information about the Instructional Technology program, visit the program website at <http://insttech.education.ucf.edu>

Example III: Counseling Education

- MHS 7406 Advanced Theories in Counseling (3 credit hours)
- MHS 7901 Advanced Practicum in Counselor Education (3 credit hours)
- MHS 6510 Advanced Group Counseling (3 credit hours)
- MHS 7611 Supervision in Counselor Education (3 credit hours)
- MHS 7340 Advanced Career Development (3 credit hours)
- Advisor Approved Electives (12)

For more information about the Counseling Education program, visit the program website at <http://www.ucfcounselored.org>

Example IV: Exceptional Education

- EEX 7936 Current Issues/Trends in Special Education (3 credit hours)
- EEX 7527 Professional Writing/Grant Writing in Special Education (3 credit hours)
- EEX 7320 Program Evaluation and Planning in Special Education (3 credit hours)
- EEX 7939 Urban Special Education Leadership (3 credit hours)

And one of the following 3 credit hour internship:

- EEX 7865 Internship in College Instruction in Special Education (3 credit hours)
- EEX 7866 Internship in Practicum Supervision in Special Education (3 credit hours) or
- EEX 6946 Internship (3 credit hours)

Dissertation—15 Credit Hours Minimum

Doctoral students must present a prospectus for the dissertation to the doctoral adviser, prepare a proposal and present it to the dissertation committee, and defend the final research submission with the dissertation committee.

Candidacy

To enter candidacy for the Ed.D., students must have an overall 3.0 grade point average on all graduate work included in the planned program and pass all required examinations.

Candidacy Examination

- The examination must be completed prior to admission to candidacy.
- The examinations will be scheduled by the student and major adviser. The associate dean for graduate studies must be notified of the date and location of the exam 30 days in advance.
- Students must be enrolled in the university during the semester an examination is taken.

Graduate Council Curriculum Subcommittee **Course Agenda 03-19-08**

College of Sciences Course Action Additions

PCB 5XXX COS-Biology 3(3,0)

Comparative Endocrinology: PR: PCB 3023 and PCB 3044 or equivalent and C.I. Hormonal regulation of animal behavior and physiological responses to the environment.

30 character abbreviation: **Comparative Endocrinology**

PCB 5XXX COS-Biology 3(3,0)

Evolutionary Ecology: PR: PCB 4683 or equivalent and C.I. Evolution of life history traits (e.g., propagule size/number, age/size at maturity, survivorship and senescence) examined using a quantitative genetic framework.

30 character abbreviation: **Evolutionary Ecology**

AST 5XXX COS-Physics 3(3,0)

Origin and Evolution of Planetary Systems: PR: Admission to Physics MS or PhD or C.I. Observations and properties of extrasolar planets and circumstellar disks through physics of disk evolution and planet formation and dynamical evolution of planetary systems.

30 character abbreviation: **Origins of Planetary Systems**

Engineering & Computer Science Course Action Additions

CIS 5XXX ECS-Computer Science 3(3,0)

Capacity Planning and Performance Evaluation of Web Services: PR: COP 4600, Graduate standing and/or approval of the Director of the SWEWA. Web performance problems, basic performance concepts, quantitative models for web performance, planning the capacity of web services, understanding and characterizing the workload, and measuring performance.

30 character abbreviation: **Capacity & Performance of Web**

CIS 5XXX ECS-Computer Science 3(3,0)

Designing Secure Transactions in Web Applications: PR: Graduate standing and approval of the Director of the SWEWA. Secure electronic commerce, data indirection, shell command injection, cross-site scripting, Web Trojans, symmetric encryption, security protocols, application vulnerabilities, threats and hackers.

30 character abbreviation: **Designing Secure Transactions**

CIS 5XXX ECS-Computer Science 3(3,0)

Human-Computer Interface Design: PR: COP 4331C, Graduate standing and/or approval of the Director of the SWEWA. Focuses on dynamics of human-computer interaction. Provides a comprehensive overview of HCI design as a software discipline. Features a user-centered approach to Web-based application design.

30 character abbreviation: Human Comp Interface Design

CIS 5XXX ECS-Computer Science 3(3,0)

Web Application Authoring Tools: PR: Graduate standing and approval of the Director of the SWEWA. A survey of available tools for creating and maintaining Web sites, and methodologies for determining which tool is best suited for a particular application environment.

30 character abbreviation: Web App Authoring Tools

CIS 5XXX ECS-Computer Science 3(3,0)

Web Application Testing: PR: Graduate standing and approval of the Director of the SWEWA. Test design strategies, patterns and tools. Metrics. Client-server and wireless applications testing. Automated testing. Quality assurance. Performance, security, and usability analysis. Cross site scripting tests.

30 character abbreviation: Web Application Testing

CIS 5XXX ECS-Computer Science 3(3,0)

Web Server Configuration and Maintenance: PR: COP 3502C, CNT 3004, Graduate standing and/or approval of the Director of the SWEWA. Offers a comprehensive overview of the tools and techniques needed to succeed as a Web Server Administrator, including the tasks they are expected to perform.

30 character abbreviation: Web Server Config & Maitenance

CIS 6XXX ECS-Computer Science 3(3,0)

Database Interface Development: PR: COP 4710, CIS 5XXX (Web Application Authoring Tools), Graduate standing and/or approval of the Director of the SWEWA. Design and implementation techniques for incorporating database interfaces in Web applications. Comparison of tools and methodologies, including Microsoft .NET, Java JDBC, and PHP. Hands-on exercises.

30 character abbreviation: Database Interface Development

CIS 6XXX ECS-Computer Science 3(3,0)

Planning and Estimating Web Application Development: PR: DIG 3134C or CET 4583, CIS 5XXX (Designing Secure Transactions for Web Applications), CIS 5XXX (Database Interface Development), graduate standing and/or approval or the Director of the SWEWA. Web project manager responsibilities. Team assembly and communication. Project definition, change management, planning strategies and workflow. Design, build and delivery stages. Quality Assurance. Agile methodologies.

30 character abbreviation: Plan & Estimating Web App Dev

CIS 6XXX ECS-Computer Science 3(3,0)

Web Application Architecture and Design: PR: COP 4331C, CIS 5XXX (Designing Secure Transactions for Web Applications), CIS 5XXX (Database Interface Development), graduate standing and/or approval of the Director of SWEWA. Software, web, security, information, messaging, and deployment architecture. Architecture views. Architecture patterns. Design patterns. UML and RUP methodologies.

30 character abbreviation: Web Application Arch & Design

College of Business Adm Course Action Revisions

GEB 6516 Technology Commercialization 3(3,0)

GEB 5XXX Technological Entrepreneurship

PR: Graduate standing.

Focus of the course is on identification, evaluation and commercialization of new technologies. Emphasis will be placed on the legal, financial and strategy aspects of technology transfer and development.

30 character abbreviation: **Technological Entrepreneurship**

Engineering & Computer Science Course Action Revisions

COP 5537 Network Optimization 3(3,0)

PR: Graduate standing or C.I.

~~Recent advances in the theory and computational techniques for optimal design and analysis of large networks for computers, communications, transportation, web and other applications.~~

Techniques for modeling complex, interconnected systems as networks; optimization with graph theory; algorithms, data structures, and computational complexity; statistical methods for studying large, evolving networks.