

Morgridge College of Education

**Quantitative Research Methods
Student Handbook**

Doctor of Philosophy



UNIVERSITY OF
DENVER

**Morgridge College
of Education**

2009-2010

TABLE OF CONTENTS

Introduction	3
Faculty and Staff.....	3
Honor Code.....	4
Quantitative Research Methods Program.....	5
Unique Program Features.....	5
Program Structure of the Morgridge College of Education.....	6
QRM Learning Goals.....	7
Degree Requirements	9
Degree Requirements for Doctor of Philosophy in Education.....	9
Course Requirements.....	14
Course Descriptions.....	17
Examinations	21
Comprehensive Exam.....	21
Doctoral Dissertation	22
Doctoral Dissertation Policies.....	22
Student Handbook Contract	23
Annual Review Form	24

The *University of Denver's Quantitative Research Methods Doctoral Student Handbook* provides the prospective and admitted student with the policies and procedures to progress through the requirements of the degree program. In addition to our program publication, the student should become familiar with the *Morgridge College of Education Bulletin*. Although every effort has been made to ensure their agreement, it is the student's responsibility to read the norms regarding degree programs in both documents and to complete various program steps in a timely fashion.

The University of Denver reserves the right to make changes in the regulations, courses, rules, fees or other changes in this handbook without advance notice.

Inquiries concerning the Quantitative Research Methods Program should be directed to the Office of Admissions and Enrollment Services, 2450 S. Vine St., Denver, CO 80208; Phone 303-871-2509 and edinfo@du.edu.

The University of Denver (Colorado Seminary) is an Equal Opportunity Institution. It is the policy of the University not to discriminate in the admission of students, in the provision of services, or in employment, on the basis of race, color, religion, sex, national origin, age, marital or veteran status, sexual orientation, or physical or mental disability.

Inquiries concerning allegations of discrimination based on any of the above matters may be referred to the University of Denver Affirmative Action Office, 2020 E. Evans Ave., Room 104, Denver, CO 80208, 303-871-2307, or the U.S. Department of Education, Office of Civil Rights, 1244 Speer Blvd., Denver, CO 80204.

INTRODUCTION

Welcome to graduate studies in Quantitative Research Methods (QRM). The goal of the QRM program is to enhance the development and use of research in the social and health sciences. Our goals as faculty are to equip you with cutting-edge research skills, creative educational vision, social responsibility, and sufficient experience in application of your skills and knowledge to achieve a feeling of comfort. We are committed to shaping a safe, sustainable, democratic, and just world and believe that high quality research is one approach to doing this. We are pleased to have you join us in this venture.

Kathy E. Green

QUANTITATIVE RESEARCH METHODS FACULTY

Core Faculty	
<p>Kathy Green, Ph.D. Professor and Chair Quantitative Research Methods JMAC 116 303-871-2490 kgreen@du.edu</p>	<p>Duan Zhang, Ph.D. Assistant Professor Quantitative Research Methods JMAC 117 303-871-3373 duan.zhang@du.edu</p>
Associated Faculty	
<p>Charles Reichardt, Ph.D. Professor Psychology Department Frontier Hall 344 303-871-3783 creichar@du.edu</p>	<p>Kent Seidel, Ph.D. Associate Professor Educational Administration & Policy Studies Wesley Hall 306 303-871-2496 Kent.seidel@du.edu</p>
Staff	
<p>Sandy Snyder-Mondragon Assistant Director, Traditional Programs JMAC 123 303-871-2295 smondrag@du.edu</p>	<p>Nick Heckart Program Assistant JMAC 102 303-871-2747 nheckart@du.edu</p>
<p>Linda McCarthy Graduate Admissions Coordinator Ammi Hyde 124 303-871-2509 educ03@denver.du.edu</p>	<p>Beverly Kohl Technology Coordinator JMAC 114 303-871-2789 bkohl@du.edu</p>

UNIVERSITY OF DENVER HONOR CODE



Adopted by
The Morgridge College of Education

HONOR CODE STATEMENT All members of the University community are entrusted with the responsibility of observing certain ethical goals and values as they relate to academic integrity. Essential to the fundamental purpose of the University is the commitment to the principles of truth and honesty. The Honor Code is designed so that responsibility for upholding these principles lies with the individual as well as the entire community.

The Honor Code fosters and advances an environment of ethical conduct in the academic community of the University, the foundation of which includes the pursuit of academic honesty and integrity. Through an atmosphere of mutual respect we enhance the value of our education and bring forth the highest standard of academic excellence. Members of the University community, including students, faculty, staff, administrators and trustees, must not commit any intentional misrepresentation or deception in academic or professional matters.

Refer to http://www.du.edu/facsen/honor_code.html for the entire honor code.

QUANTITATIVE RESEARCH METHODS PROGRAM

This handbook provides information about the doctoral program in Quantitative Research Methods. The program is individually planned around students' backgrounds and career goals. Most students prepare for positions that require consulting, research, measure development, policy-making, and teaching. Small seminars, independent projects, and a practicum offer opportunities for an individualized and well-rounded program.

The program in QRM at the Ph.D. level focuses on measurement, research design, statistics, and evaluation. All Ph.D. students will take a course in Assessment as well as major area studies. Doctoral students will also take dissertation credits.

UNIQUE PROGRAM FEATURES

In addition to the facilities of the entire campus, there are three features of the QRM Program at DU that distinguish it as a strong graduate program. We are particularly fortunate to have an outstanding faculty. Professors are not only leaders in their fields but also demonstrate a deep commitment to students' academic as well as personal growth. While our professors set high standards for students, they also individualize requirements to meet each student's needs and goals.

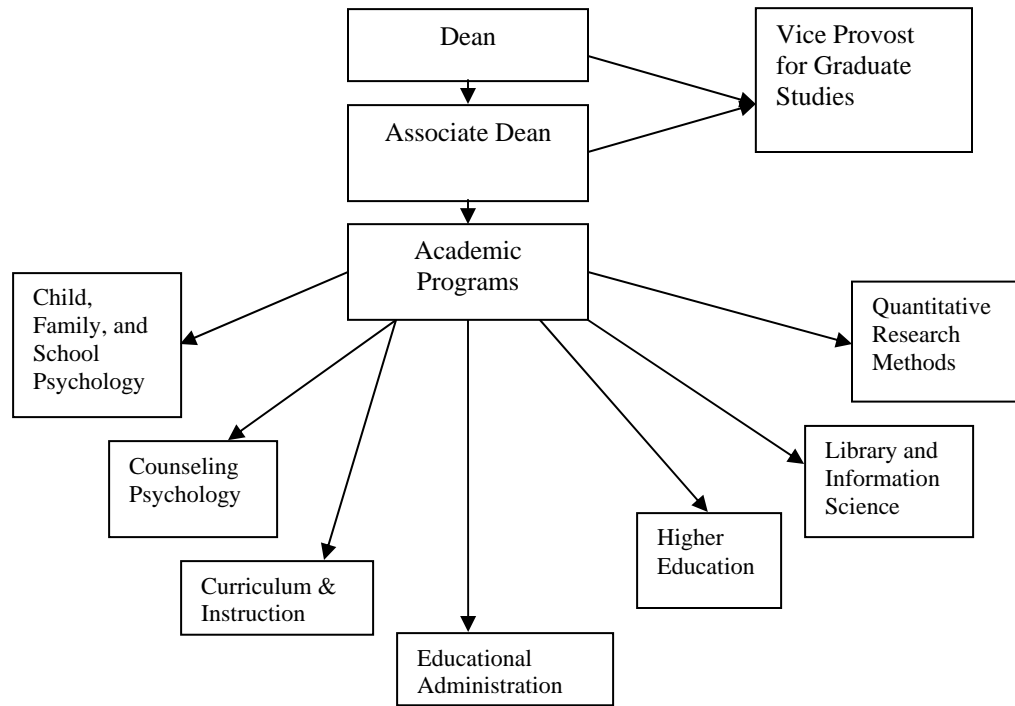
Another excellent feature of this program is the students themselves. A wide range of experiences, creative ideas, sincere dedication to research, and a sense of humor are some of the characteristics of people in our program. We enjoy each other's genuine cooperation, encouragement, and inspiration.

Small class sizes are the third distinguishing feature of our program. It is one that enables us to get to know one another and engage in ongoing dialogue about topics of interest, form study groups, and give advice about the direction of a project or dissertation. Personal and professional friendships form and continue long after graduate school.

These features contribute to an outstanding educational experience. We feel fortunate to be part of a program in which professors make themselves readily available for consultation, students support and assist one another, and small class sizes result in rich interaction among students and faculty.

The QRM program is one of seven programs offered within the Morgridge College of Education. Students may opt to take cognate courses from programs within or outside of the Morgridge College of Education. QRM students take classes with students in programs from across the College. The College structure is pictured on the following page.

Program Structure of the Morgridge College of Education



QRM LEARNING GOALS

The broad learning goals of QRM are as follows. Students will:

1. Have a general knowledge of research methods and program evaluation and advanced knowledge of psychometrics and statistics;
2. Think critically about research;
3. Engage in research serving professional and local communities; and
4. Understand ethics as they apply to research and behave in an ethical manner.

QRM goals relate to the MCE mission in advancing scholarship via practice and encouraging critical thought.

Data addressing learning outcomes come from multiple sources: (1) grades in courses, (2) annual review of QRM students, (3) comprehensive exams, (4) practicum and other research products, (5) dissertations, (6) selected items from MCE surveys of continuing and graduating students, (7) QRM alumni survey, (8) course evaluations, and/or (9) Research and Scholarship Committee discussions. Learning outcomes along with evaluation criteria and a synopsis of the process for reviewing data are listed below.

Learning Goal 1 (have a general knowledge of research methods and program evaluation and advanced knowledge of psychometrics and statistics) and Learning Goal 2 (think critically about research)		
Learning Outcomes: Students will demonstrate skill in	Criteria for Evaluating Learning Outcomes	Process for Collection and Review of Evidence
1. Designing research to address significant problems, with knowledge and understanding of the strengths and limitations of diverse modes of inquiry.	<ol style="list-style-type: none"> 1) Success in coursework (B or better): Empirical research methods (QRM 4903), qualitative research methods (CUI 4951), survey research (QRM 4921), meta-analysis (QRM 4907) 2) Comprehensive exam performance (MA and Ph.D.) 3) Research practicum 4) Dissertation quality 5) 3 MCE survey items (skill with critical thinking..., current level of expertise in designing quantitative research studies..., current level of expertise in designing .. qualitative research) 	<ol style="list-style-type: none"> 1) track student grades—reviewed annually by QRM faculty 2) review QRM student comprehensive exam performance on research methods questions—done each quarter there is a student taking an exam by both QRM faculty with discussion of mistakes on comps 3) Practicum advisor reviews product, which then is submitted for presentation (or publication) 4) Review by dissertation committee, with a goal of including a content expert external to DU on each committee and 100% student pass with no/minor changes 5) survey data collected by College—review of item responses by QRM faculty

<p>2. Applying appropriate analytic strategies in analysis of quantitative data.</p>	<ol style="list-style-type: none"> 1) Coursework: QRM 4930, intermediate, and advanced statistics classes 2) comprehensive exam performance 3) research practicum 4) dissertation quality 5) 1 MCE survey item (current level of expertise in statistics) 	<ol style="list-style-type: none"> 1) track student grades—reviewed annually by QRM faculty 2) review QRM student comprehensive exam performance on statistics questions—done each quarter there is a student taking an exam by both QRM faculty with discussion 3) Practicum advisor reviews product 4) Review by dissertation committee 5) survey data collected by College—review by QRM faculty
<p>3. Creating and evaluating measures using diverse analytic strategies.</p>	<ol style="list-style-type: none"> 1) Coursework: QRM 4905, QRM 4908 2) Comprehensive exam performance 3) dissertation quality 4) 1 MCE survey item (level of expertise in designing measures) 	<ol style="list-style-type: none"> 1) track student grades—reviewed annually by QRM faculty 2) review QRM student comprehensive exam performance on measurement questions 3) Review by dissertation committee 4) survey data collected by college
<p>4. Crafting coherent and concise expressions of ideas related to research, and communicating those ideas effectively.</p>	<ol style="list-style-type: none"> 1) Coursework: QRM 4903 2) dissertation quality 3) conference presentation or publication 4) 2 MCE survey items (skill with written communication, skill with verbal communication) 	<ol style="list-style-type: none"> 1) track student grades—reviewed annually by QRM faculty 2) Review by dissertation committee 3) paper accepted under peer review process 4) survey data collected by College—review by QRM faculty
<p>5. Students will demonstrate a commitment to continuing learning by engagement with professional and local communities.</p>	<ol style="list-style-type: none"> 1) membership in professional organizations (goal of all students maintaining membership in at least one relevant professional organization) 2) presentation, publication, and/or service to journals or professional organizations (goal of all students having presented and/or published prior to graduation) 3) practica in local organizations 	<ol style="list-style-type: none"> 1 & 2) student annual review—discussed by QRM faculty on an annual basis 3) placement in local sites for practicum
<p>6. Students will demonstrate professional behavior by understanding research ethics and adhering to an ethical code of conduct.</p>	<ol style="list-style-type: none"> 1) coursework in research ethics (QRM 4903, QRM 4921) 2) IRB process 3) 1 MCE survey item (level of knowledge of ethics...) 	<ol style="list-style-type: none"> 1) track student grades—reviewed annually by QRM faculty 2) mandatory submission of IRB applications—supervision by major advisor 3) survey data collected by College—review by QRM faculty

DEGREE REQUIREMENTS

Doctor of Philosophy in Education

Transfer of Credit

Make a formal request on the Course Work Plan for transfer of graduate credit. Confirm with the Office of Admissions and Enrollment Services that Official Transcripts are on file for institutions from which credit is to be transferred. These credits must be post M.A., cannot be over five years old when transferred, and must have a grade of "B" or better from an accredited institution. Maximum allowable transfer of credit is 15-quarter hours post-master's. The approval must be completed *in the first quarter* of enrollment. Consult your advisor; not all credit is transferable as the coursework may not reflect program goals.

Course Work Plan

Draft a Course Work Plan with your advisor during your *first quarter* of enrollment if you wish to transfer credits, otherwise complete it by the end of your *third quarter* or before you have completed 30 credit hours of coursework. After it has the proper signatures, file it in the Office of Admissions and Enrollment Services, Ammi Hyde Building Room 124. If any changes occur in your course work plan during your program, request a Change of Course Work Plan form from the Office of Admissions and Enrollment Services, have your advisor approve all changes, then file it with the Office of Admissions and Enrollment Services. Changes to the plan may be made at any time based on discussion with your advisor.

Cognate Requirement

All doctoral students complete a cognate or minor study in a field outside their major area of study, determined in conjunction with the student's major course work advisor. The credits required to fill this obligation vary depending upon the student's prior graduate level course work (if any) in the minor field. The cognate should add to one's breadth or depth of knowledge in evaluation, research methods, and statistics. Graduate-level classes, chosen in consultation with an advisor, can be taken from (1) the QRM Program, (2) other programs within the Morgridge College of Education, or (3) any other department at University of Denver.

Practicum

Students in the doctoral program complete a research practicum. Students work with their advisor in deciding the focus of this practicum. The goal of the practicum is to provide field experiences in designing, conducting, and presenting research. It is intended that every doctoral student will submit the paper written from the practicum for presentation at a national conference and/or publication. It is the intent of the program that students receive multiple experiences with conducting research projects during the program, and so students are strongly encouraged to work with a QRM faculty member on an independent research project as well as their practicum prior to initiating work on a dissertation.

CONTINUOUS ENROLLMENT POLICY (UPDATED 5-4-08)

Please note there are two (2) Continuous Enrollment Policies: one for the Morgridge College of Education and one for DU Graduate Studies. Students MUST adhere to the MCE Continuous Enrollment Policy at all times AND, under certain circumstances described below, should follow the DU Graduate Studies Continuous Enrollment Policy as well.

I. Morgridge College of Education Continuous Enrollment Policy

Once the student has completed successfully all required courses and the required comprehensive exam, a student must register for dissertation credits. The faculty support students in the dissertation process by providing advising during this phase of the Ph.D. It is the expectation of the faculty that each student will successfully complete the required dissertation with quality work. In order to encourage the completion of the dissertation, the policy requiring continuous enrollment is as follows:

A student is required to remain continuously registered for dissertation credit at the minimum rate of one credit per quarter (Academic Year of Fall, Winter, and Spring quarters), until the student has completed the minimum necessary number of dissertation hours required by the student's program AND until a successful dissertation defense has occurred. Therefore, depending on the time a student takes to successfully complete the dissertation, registration for additional dissertation credits may be necessary beyond the required minimum.

II. DU Graduate Studies Continuous Enrollment Policy

All graduate degree-seeking students must be in active status and continuously enrolled. Enrollment may consist of registration for courses, thesis or dissertation credits, or Continuous Enrollment registration. The Graduate Studies Continuous Enrollment Policy is ideal for students who need to defer loan repayment while completing the dissertation though you must consult with the appropriate DU Financial Aid Office for more specific information.

Keep in mind you must also register for one credit hour of dissertation research (QRM 5995) each quarter until you graduate per MCE Policy (noted above). If a student is on a full-time, year-long internship required by your program, this generally applies to Counseling Psychology and Child, Family, and School Psychology students only, the Graduate Studies Continuous Enrollment Policy should be utilized so that you are in active status and are continuously enrolled which is the university policy.

If a student is registering for QRM 5995 for less than four (4) credits in a given quarter AND you are attempting to defer student loan repayments, the DU Graduate Studies Continuous Enrollment Policy should be utilized in addition to the MCE Continuous Enrollment Policy. You are advised to always contact the DU Office of Financial Aid to clarify any financial aid requirements. The MCE does not provide financial aid policy interpretation so please consult the appropriate office for support on any financial aid policy.

To register for DU Graduate Studies Continuous Enrollment, a form must be completed and approved by the Morgridge College of Education, who will submit it to the Vice Provost for Graduate Studies for final approval.

For the complete DU Graduate Studies Continuous Enrollment Policy, please go to: http://www.du.edu/korbel/docs/CE_appl_and_policy.pdf. For the DU Graduate Studies Continuous Enrollment form, please go to:

<http://www.du.edu/grad/current-students/forms.html>.

Some examples of how to use these two policies:

1. If you are not concerned about loan repayment issues or not currently receiving some forms of financial aid, you may only need to register for the MCE Continuous Enrollment Policy. Please consult the DU Office of Financial Aid for specific requirements.
2. If you are receiving some forms of financial aid and/or you need to defer loan repayment while you are working on your dissertation, the DU Graduate Studies

Continuous Enrollment Policy would be necessary in addition to the MCE Continuous Enrollment Policy. Please consult the DU Office of Financial Aid for specific requirements.

Doctoral Dissertation

Students should refer to the Morgridge College of Education's dissertation handbook, known as *Completing the Doctoral Dissertation: Guidelines for Students*, which can be found on the MCE website, <http://www.du.edu/education/display/docs/handbooks/Dissertationthesis-H.pdf>. Students should refer to this document as the definitive word on MCE dissertation policies and procedures.

Dissertation Proposal Approved

The doctoral candidate will develop a dissertation proposal and present it to his/her dissertation committee. After approval of the dissertation proposal, each committee member will sign the approval page, which should then be filed in the Graduate Office.

Institutional Review Board (IRB)

All studies and experiments involving human subjects conducted by the Morgridge College of Education faculty, staff, or students, under the auspices of the College and not under a sponsored agreement through the University, must gain prior approval from the Institutional Review Board (IRB). Anyone who conducts studies or experiments involving human subjects without such approval may be personally responsible for legal or other liabilities that may consequently arise. A Procedures for Research Proposal Review packet outlines the specific procedures for human subjects approval and also contains the application that is to be submitted to the Review Board. Anyone submitting an application to the IRB must first complete an examination on human subjects history, rules, and regulations. For more information view the website at: www.du.edu/orsp/irb.html. Further, it is the student's responsibility to be sure IRB approval, once obtained, remains current through submission of an approved dissertation. Changes in the student's email, phone, or mailing address, or a change in the committee chairperson should be reported to the IRB.

Final Candidacy

Students must achieve final candidacy at least one quarter prior to the quarter in which they intend to graduate. Final candidacy includes completion of all of the above requirements.

Dissertation Completion

Complete the doctoral dissertation and schedule the oral examination following the guidelines available in the Office of Admissions and Enrollment Services.

Residence Requirement

A student must meet residence requirements by enrollment for at least six quarters.

Registration for Graduation

All students must apply for graduation one quarter prior to the quarter in which they intend to graduate. Applications are available in the Education Graduate Office, Ammi Hyde Room 124, or in the Graduate Studies Office in University Hall Room 216. During the quarter of intended graduation, students should be sure that all library fines, traffic tickets, or other encumbered charges have been paid.

Extension of a Degree Program

Candidates for all degree programs are expected to complete their degree within the stated expected time period specified by the University of Denver. This time period is calculated

from the date of initial enrollment in the student's program of study. Students may, under special circumstances, request one period of extension, not to exceed one year. Extension requests are not automatically granted and must be considered extraordinary circumstances. To be eligible for consideration for an extension, an approved dissertation proposal must be on file. All requests for extension must be submitted to the Office of Admissions and Enrollment prior to the expiration of the allotted time period. Students who do not complete their program during an approved extension period will not be permitted to re-apply for additional extensions and their program of study will be terminated. Specific procedures for an extension of a degree program can be found in the MCE Bulletin.

Ethical Behavior and Conduct

Most students understand that copying another student's answers on a test, copying another student's paper, stealing copies of a test, using forbidden material on a closed book test, etc., are included in the typical definition of academic cheating. Again, as students you should know such behavior is unacceptable and, according to the DU Honor Code, are grounds for placing a student on probation or dismissing them from the University. Please refer to the DU Honor Code: <http://www.du.edu/ccs/honorcode.html>. Students are expected to demonstrate the highest level of ethical behavior as set forth by the American Psychological Association (APA).

In the QRM Program at the University of Denver, we have tried to maintain an atmosphere of student cooperation. As a result, students are often encouraged to work together on a project or to prepare for tests. Students prepare together for exams and often share notes, references, etc. On the other hand, it is and has been unacceptable in almost any academic setting to use other people's ideas or data without giving them credit. This is called plagiarism and is considered unethical according to the APA (2000) Code of Ethics. As a result, the Program faculty wants to clarify that it is similarly unacceptable in our Program to "borrow" another student's work without giving him or her credit. It is often the case that professors use similar or identical assignments from year to year. Usually, this is because they believe the assignments are useful in teaching students a particular concept or skill. Using papers written by others, or parts of papers, materials, and handing it in as your own work is clearly unethical. It is tempting in the guise of friendship to pass on to new students copies of old assignments knowing that a professor will use the same one in future years. It is also tempting for new students to borrow copies of old assignments. Such behavior is, however, unfair to other students who do not have "friends" from whom to borrow assignments, to the student whose work is being "borrowed" without credit, and to the student who is "borrowing" the assignment since they do not have to do the learning involved in working through the assignment on their own. As a result, the faculty will consider such behavior to be cheating and it will be treated like other forms of cheating specified in the first paragraph. Points may be deducted from a student's grade if cheating is discovered, and/or the student may be referred to the Office of Citizenship & Community Standards.

Unethical behavior will be considered cause for dismissal at any time during a student's program. These policies are described more fully in the MCE Bulletin. Violations of code of student conduct or the honor code are overseen by the Office of Citizenship & Community Standards (<http://www.du.edu/ccs>) in conjunction with an appointed DU Conduct Review Board. This office can be contacted with questions about these policies and procedures at 303-871-4851.

Probation or Dismissal from the Program

Students who do not follow program or university policies may be placed on probation and ultimately dismissed from the program. While these instances are rare, should they occur,

students first will be contacted by their advisor and then will be informed in writing of all concerns that have been raised. In other words, students will be told specifically and in writing of any issues in regards to academic progress or attendance, interpersonal or practice effectiveness, or ethical violations. Students also will be asked to respond to these concerns personally and in writing. Decisions regarding probation or dismissal will be considered by the Program Director and QRM faculty in consultation with the MCE Associate Dean. Students will be informed of all pertinent information regarding the basis for the decision.

Grievance Process

If a student has a grievance involving a faculty member, it is preferable for the student to work it out with the faculty member. Students' advisors may act in a consultative role in this process. If students cannot work out the grievance directly with the faculty member, the student may direct his/her concern to the QRM program faculty by contacting the Program Director or other QRM faculty personally or in writing. If the grievance is not solved to the student's satisfaction, the student may appeal through the regular University grievance procedure by contacting the Associate Dean of the Morgridge College of Education. Students placed on probation or dismissed from the program have the right to appeal by following the DU appeal procedure outlined in the MCE Bulletin. Grievance and due process procedures for all grading, retention and dismissal procedures are available in the MCE Bulletin.

COURSE REQUIREMENTS

QRM Doctor of Philosophy Degree

All students are required to complete a course plan with their advisors. Doctoral students will take courses in Assessment, QRM, and dissertation research. Students are also required to take courses in related studies or a cognate field. The minimum credit requirement for the program is 90-quarter hours. Students may transfer a maximum of 15-quarter hours above the M.A. degree if the courses have been taken within five years and are approved for transfer. Approval of advisor is required. Courses marked with an asterisk (*) are required unless previously taken, and all waived courses must be approved by an advisor within the first quarter of enrollment.

QRM Doctor of Philosophy Course Requirements

I. Morgridge College of Education Requirements	Course #	Credit Hours
A. Research (*all required)		
*Empirical Research Methods	QRM 4903	3
*Statistical Methods in Education and Psychology	QRM 4930	5
*Qualitative Research	CUI 4951	3
*Dissertation Research (must register for at least 1 hr per Fall, Winter & Spring after most coursework is completed until Graduation)	QRM 5995	10-30
II. Program Requirements		
A. Assessment (choose one)		
CFSP Supervision	CFSP 4361	2
Play-Based Assessment and Intervention	CFSP 4334	5
Advanced Play Assessment and Intervention	CFSP 4341	2
B. Measurement (*all required)		
* Psychometric Theory	QRM 4905	3
*Item Response Theory	QRM 4909	3
*Meta Analysis in Social Sciences Research	QRM 4907	2
*Topics in Psychometrics	QRM 4906	1-3
Program Assessment	HED 4262	3
C. Research Methods (*required)		
* Program Evaluation Theory	QRM 4980	3
*Topics in Research Design	QRM 4908	1-3
*Research Ethics (topic course required)	QRM 4908	1
*Survey Research Methods	QRM 4921	3
Choose at least one of the following:		
Educational Criticism and Connoisseurship	CUI 4057	3
Ethnographic Research	CUI 4059	3
Single Case Research Designs	CFSP 4364	3
Community Based Research in Urban Settings	CUI 4036	3

<i>D. Statistics (* required)</i>	Course #	Credit Hours
*Correlation & Regression (or PSYC 4300)	QRM 4952	4
*Analysis of Variance (or PSYC 4330)	QRM 4960	5
*Multivariate Analysis	QRM 4950	5
*Hierarchical Linear Modeling	QRM 4956	3
* Structural Equation Modeling (or PSYC 4290))4290)	QRM 4925	5
*Latent Growth Curve Modeling (recommended)	QRM 4957	3
Topics in Statistics	QRM 4955	3
Sampling Theory and Applications	STAT 4680	4
Nonparametric Statistics	STAT 4810	4
III. Practicum		
Research Practicum	QRM 4901	3
IV. Cognate Requirements		
Total of 20 credit hours		20

	Credits Required	Credits Transferred in	Credits Completed
I. Morgridge College of Education Requirements			
<i>A. Research</i>	21-41		
II. Division/Program Requirements			
<i>A. Assessment</i>	2-5		
<i>B. Measurement</i>	8		
<i>C. Research Methods</i>	10		
<i>D. Statistics</i>	25		
III. Practicum	3		
IV. Cognate Requirement	20		
Total	Minimum 90 hours		

SUGGESTED COURSE SEQUENCING

Note: The recommended sequence for the statistics courses is as follows:

1. QRM 4930 or equivalent (offered Fall quarter, sometimes in Summer)
2. QRM 4952, QRM 4960 (offered Fall & Winter)
3. QRM 4950 (offered Spring quarter)
4. QRM 4925, QRM 4956 (offered alternate years)
5. QRM 4955 (offered periodically)

For measurement courses, the recommended sequence is:

1. QRM 4905 (offered Winter)
2. QRM 4906 (offered Fall every second year), QRM 4909 (offered Spring every second year)

For research courses, the recommended sequence is:

1. QRM 4903, QRM 4921, QRM 4951
2. CFSP 4364 (offered periodically)

TESTING OUT OR WAIVING COURSES

Students may waive QRM 4903, QRM 4930 or CUI 4951 if they have taken comparable coursework within 5 years with a grade of “B” or better. To waive a QRM course, contact the QRM program chair and be prepared to document the course you have taken (e.g., syllabus, course projects); to waive CUI 4951, contact the course instructor for information. Students may also attempt to test out of these courses. There is a fee to register for each course test-out exam; consult the course instructor or the MCE Office of Admissions and Enrollment Services. Any credits for courses waived or courses tested out of must be fulfilled by completing other, typically more advanced, courses.

Students may also waive program requirements if they have had comparable coursework previously. Contact your coursework advisor for requirements.

COURSE DESCRIPTIONS

The following are descriptions of Morgridge College of Education courses you might take as a part of your degree program. *For complete and current course schedules and descriptions, please refer to the Morgridge College of Education web site at www.du.edu/education.*

CUI 4059 Ethnographic Research 3 qtr. hrs

Explores ways in which ethnographers describe and explain experience of people in educational settings.

CUI 4951 Qualitative Research Methods 3qtr. hrs

This course emphasizes conceptual and theoretical issues in qualitative research.

CFSP 4312 Learning Application and Analysis 3qtr. hrs

Examines a range of learning theories from the 19th to the 21st centuries. Theories are applied to case studies.

CFSP 4314 The Nature of Intelligence 3qtr. hrs

Explores the nature of human intelligence especially as it relates to the concept of giftedness. Specific topics include the history of interest in intelligence and giftedness; historical and current conceptualizations of intelligence; theories and models of intelligence currently influencing gifted education, such as information processing models, multiple intelligences, the general intelligence factor, and others; the measurement of intelligence; and educational implications of exceptional intelligence.

CFSP 4363 Program Development and Evaluation 3qtr. hrs

Focuses on program development and evaluation in school and agency settings. Both qualitative and quantitative methods of program evaluation are discussed.

CFSP 4364 Single-Subject Designs 3 qtr hours.

This course reviews alternatives to the group-comparison approach to experimental educational and psychological research. Students learn principal 'within-subject' or 'single-case' designs: the reversal design, the multiple-baseline design, the alternating treatment design, and the changing criterion design. Students also learn how to develop a measurement system to analyze data using these designs and how to assess the reliability and validity of their measurements.

QRM 4900 Educational Measurement 3 qtr. hrs

This course examines the meaning, characteristics, and processes of educational measurement and evaluation. Development and interpretation of both standardized and informal tests are considered.

QRM 4901 Practicum in Research 1-3 qtr. hrs

This course provides a supervised experience in design and implementation of an empirical research study. Organization of research proposal, completion of human subjects applications, collection and analysis of data are emphasized. Students are also expected to prepare a written report of their project, which is suitable for professional presentation or publication. Prerequisite: permission of instructor.

QRM 4903 Empirical Research Methods 3 qtr. hrs

This course provides in depth study of empirical research requirements involved in experimental, quasi-experimental, correlational, and single-subject designs.

QRM 4905 Psychometric Theory 3 qtr. hrs

This course examines the major psychometric theories (e.g., classical, item response) as they relate to issues of reliability, generalizability, validity, item analysis methods, and criterion referenced assessment. Prerequisite: QRM 4930

QRM 4906 Topics in Psychometrics 1-3 qtr. hrs

Topics vary, but include computer applications of item response theory, affective measure construction, generalizability theory, additive conjoint measurement, large scale testing, and standard setting. Prerequisites: QRM 4905 and instructor's permission

QRM 4907 Meta Analysis in Social Sciences Research 2 qtr. hrs

This course examines meta-analytic techniques in the social sciences. Included are discussions of review of critical databases, coverage of all major methods of data collection and analysis, and coverage of how best to present meta-analytic findings for publication.

QRM 4908 Topics in Research Design 1-3 qtr. hrs

Topics vary by quarter, but may include new innovations in quantitative research design, best practices in single-subject design and analysis, best practices in the analysis of change, or ethics in research.

QRM 4909 Item Response Theory 3 qtr. hrs

This course presents item response theory, with most attention to the Rasch model, and computer applications of item response theory. Prerequisites: QRM 4905.

QRM 4910 Education Research and Measurement 4 qtr. hrs

This course is intended for Master's students in the Morgridge College of Education. Quantitative research designs, empirical methods of data collection and interpretation, and measurement issues in research are examined.

QRM 4920 Structural Foundations of Research in Social Sciences 3 qtr. hrs

This is the introductory course on research methods for all PhD students in the Morgridge College of Education. Included are discussions of identification and development of problems for research; introduction to basic quantitative and qualitative methods of conducting research in educational and human service settings; and critical review of experimental, survey, case study, educational, historical, ethnographic, and criticism methods.

QRM 4921 Survey Design and Analysis 3 qtr. hrs

Survey techniques, item construction, sampling, maximizing response rates and data analysis; survey construction and data analysis required. Prerequisites: QRM 4920, 4930

QRM 4925 Structural Equation Modeling 5 qtr. Hrs

Major applications of and issues related to covariance structure modeling, specifically confirmatory factor analysis and latent variable path modeling; types of research applications for which covariance structure modeling analyses using computer

program. Prerequisite: QRM 4952. Recommended Prerequisite: background in multivariate analysis, factor analysis and psychometric theory.

QRM 4930 Statistical Methods in Education and Psychology 5 qtr. hrs

This is the beginning statistics course and examines the use and interpretation of statistics in educational and human services research, including descriptive and inferential techniques.

QRM 4950 Multivariate Analysis 5 qtr. hrs

This course emphasizes a conceptual understanding of common multivariate statistical techniques as applied to research in education and the social sciences. Assumptions, limitation of techniques, and interpretation of findings are also stressed. Prerequisites: QRM 4920, 4930.

QRM 4952 Correlation and Regression 4 qtr. hrs

This course focuses on the study of correlation and multiple regression research designs and their application to educational and social science problems. Prerequisites: QRM 4920, 4930

QRM 4955 Topics in Statistics I 1-3 qtr. hrs

Topics vary by quarter, but may include analysis or longitudinal data, or techniques for dealing with missing data. Prerequisites: QRM 4952

QRM 4956 Hierarchical Linear Modeling 4 qtr. hrs

This course introduces models that extend multiple regression to analysis of nested data structures common in education and other social sciences. Application of these methods to various forms of multilevel data, including repeated measure (growth trajectory) data is emphasized. Prerequisites: QRM 4952.

QRM 4957 Latent Growth Curve Modeling 3 qtr. hrs

This course addresses advanced issues in longitudinal data analysis using structural equation modeling and hierarchical linear modeling with latent variables. Prerequisites: QRM 4925 (structural equation modeling) and QRM 4956 (hierarchical linear modeling).

QRM 4960 Analysis of Variance 5 qtr. hrs

This course examines one-way analysis of variance through factorial nested designs. Prerequisites: QRM 4920, 4930

QRM 4970 Statistical Applications on the Computer for the Social Sciences 3 qtr. hrs

This course focuses on use of SPSS software and other appropriate software programs in the analysis of quantitative data. Prerequisites: QRM 4920, QRM 4930

QRM 4975 Computer Applications in Qualitative Research 3 qtr. hrs

This course is a review of the assumptions of qualitative designs, types of qualitative approaches, and current data analysis techniques available through use of computer software.

QRM 4980 Program Evaluation Theory 3 qtr. hrs

This course reviews theories of program evaluation designs and analysis, and current trends in evaluation.

QRM 4981 Practicum in Program Evaluation 3 qtr. hrs

This course provides a supervised experience in designing, conducting, analyzing, and disseminating results of a program evaluation.

QRM 5991 PhD Independent Study 1-17 qtr. hrs

This course allows PhD students in QRM to study a topic area independently in conjunction with cooperating faculty member.

QRM 5992 Directed Study 1-10 qtr. hrs.

A permanent catalog course delivered on an individual basis when the course is not offered that term. Directed studies are approved under extenuating circumstances to provide an opportunity to complete a required course. Prerequisite: approval of instructor and faculty advisor, credit hours vary according to the catalog course taken.

QRM 5995 Dissertation Research 1-30 qtr. hrs.

This course is for PhD students in QRM who are engaged in completing their doctoral dissertation. Prerequisites: Advanced standing in the program.

Doctoral Comprehensive Examination

Purpose

The purpose of the Ph.D. comprehensive examination is to allow students to demonstrate ability to integrate the information and knowledge of research, measurement, and statistical theory and practice acquired during the degree program. Registration deadlines are on the MCE website.

Format

The test will be taken over a two-day time period with a different set of questions for each day. You are expected to organize your writing to give equal time to each question and to include time to proofread your answers. Some questions will be required and there will be some choice among others.

Evaluation Criteria

Accuracy in addressing the questions

In writing your responses to the question it is important to address the questions that are asked, without omitting parts of a question and without answering questions that were not asked.

Skill in defining issues

Each of the questions presented will relate to a particular problem area in quantitative research methods. In order to give focus to your response you must be able to identify the particular issue or issues you are addressing.

Clarity in stating your position

While few questions can be answered by a simple yes or no as an expert in quantitative research methods you are often required to take what seems to be the best and or most responsible position in terms of the evidence you have available at that time. In writing your responses in this examination ask yourself if a reader is able to identify clearly and directly the point of view you are developing.

Competence in applying information

To take a position on an issue is more than to repeat your own biases. You need to provide evidence in the form of bibliographic references specific data and quotations (direct or indirect) from authorities to substantiate the points you make. As a scholar in the field you are expected to be able to demonstrate that your opinions are well informed.

Clarity in writing

At this level of study you should be able to express yourself in clear and direct prose. Are you developing your responses logically and coherently? Poorly stated and illogically presented responses obscure rather than illuminate. Can a reader follow the structure of your argument? Do you use correct grammar construction and form?

Overall adequacy

Do you address the issues, reveal insight into problems, and document your position adequately?

Examples of Comprehensive Exam Questions for Doctoral Students

1. Differentiate among experimental, quasi-experimental, and correlational research designs in terms of control of extraneous variables and the validity of drawing causal inferences. Illustrate each design with an example.
2. Show how the internal consistency reliability coefficient (e.g., Cronbach's alpha) is

derived from the assumptions of true-score theory.

3. Compare and contrast multiple regression, canonical correlation, ANCOVA, and factor analysis in relation to the following:
 - a. Type of research question(s) appropriately addressed by each technique
 - b. Numbers and types of variables appropriate for the technique
 - c. Important assumptions (if any)
 - d. Important mathematical similarities and differences

DOCTORAL DISSERTATION POLICIES

Dissertation credits are reserved for work on the dissertation, which generally occurs after a student has completed all required courses and after successful completion of the required comprehensive exam. In some programs, however, a student may be under the direct supervision of a faculty member and begin preliminary work on the dissertation. A student may register for dissertation credits before completing and passing the comprehensive exam under the following conditions: 1) if the student's Dissertation Advisor agrees to work directly with the student on a regular basis throughout the quarter in which the student is registering for dissertation credit; and 2) if the student is prepared and able to dedicate substantial work to dissertation planning and preparation. It is recommended that students become familiar with the University of Denver's continuous enrollment policy, which may be found at http://www.du.edu/korbel/docs/CE_appl_and_policy.pdf.

To conduct preliminary dissertation work, the student must have the support of the dissertation advisor. The dissertation credit form can be obtained from the Morgridge College of Education's Office of Admissions and Enrollment Services, where the eligibility for credit will be verified prior to obtaining the faculty advisor's required signature. The dissertation advisor or co-advisor must be a faculty member in the Quantitative Research Methods Program. **The student must register for dissertation credits during the first week of class of the quarter in which the work will be conducted.**

The policy regarding preliminary dissertation work is as follows:

A student may register for no more than 50% of the minimum number of dissertation credits required by his/her program prior to the completion of all course work and comprehensive exams. Dissertation credit, as with any credits, will not be refunded if the student does not successfully complete his/her dissertation, other required courses, or qualifying or comprehensive exams.

Once the student has completed successfully all required courses and the required comprehensive exam, a student must follow the MCE and DU Continuous Enrollment Policies. See page 9.

Students should refer to the Morgridge College of Education's doctoral handbook, *Completing the Doctoral Dissertation: Guidelines for Students*, which can be found on the MCE website, <http://www.du.edu/education/display/docs/handbooks/Dissertationthesis-H.pdf>. Students should refer to this document as the definitive word on MCE dissertation policies and procedures.

STUDENT HANDBOOK CONTRACT

University of Denver
Morgridge College of Education
Quantitative Research Methods Program

I, _____ have received the QRM Student Handbook for the 2009 – 2010 academic year.

I understand that I am responsible for knowing all the information contained in this handbook and I affirm that I will abide by the policies and rules stated therein.

This is a living document; thus, throughout the year, material may be added or modified.

Name: _____ Date: _____

Student Annual Review Form

The Annual Review must be completed each year. We will email it to you as an attachment so you can complete it in spring of your first year, then just update it yearly.

Student Name _____

Date _____

Your Course Work Advisor's Name _____

Instructions: We are asking students to take an active role in assessment by providing us with your self-assessment of (a) your progress in meeting educational goals and (b) your strengths and weaknesses as a developing research methodologist. Please complete and return this form along with the necessary additional typed pages to your advisor at the end of spring quarter.

Program faculty will meet during the summer to review students' self-evaluations. Based on your self-evaluations as well as faculty members' observations of your progress in coursework and general professional development, you will receive feedback in the form of a letter, an email, or a conversation with QRM faculty members about your progress.

Note: You will have to complete a similar form each year. We recommend you keep a hard copy as well as the original on disk so that you can revise as needed.

1. a) Current GPA _____

b) Number of credits completed at DU in the academic year just ended _____

2. The program requires that students conduct a pre-dissertation research project (the research practicum). Have you met your pre-dissertation research practicum requirement?

Yes _____ No _____ Partial _____

a) If "yes" or "partial," indicate research activity in which you participated.

b) Indicate where you presented or published the research, date of presentation, title of presentation and attach a copy of the program page listing your presentation from the meeting where you presented.

c) If "no," indicate a plan for completing this requirement.

3. Have you filed your **Course Work Plan**? Yes _____ No _____

4. Have you taken your comprehensive examination? Yes _____ No _____

If "yes," year and quarter _____

If "no," when do you plan to take it? _____

5. If there were conditions, have they been met? Yes _____ No _____

If you have not met the conditions, when do you plan to do so?

6. Are you registered for Continuous Enrollment and Dissertation credits?

Yes_____ No_____

If no, please go to the MCE Office of Admissions and Enrollment Services to register.

7. Has your dissertation proposal been approved? Yes_____ No_____

If "yes," list the Chairperson and the proposed title

_____ (chair)

_____ (title)

If "no," do you have a proposal chairperson? Yes_____ No_____

If "yes," list name of chairperson and topic

_____ (chair)

_____ (topic)

8. If you have completed your course work, have you submitted a timeline for completing your dissertation? Yes_____ No_____

9. List professional organizations of which you are a member.

10. List all presentations you have made at meetings or conventions of professional associations since entering the program - or that have been accepted for presentation or publication (note the date, co-authors, title of presentation, name of the association, and the city in which it occurred.)

11. List all community engagement activities in which you participated during the year (e.g., program evaluation, volunteer, paid/unpaid consulting).