MSED Handbook

UCSD

Mathematics and Science Education Ph.D. Program

Revised March 4, 2023

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WELCOME

This handbook has been created to provide doctoral students and participating faculty with an orientation to the MSED program and to articulate the rules and policies governing the program. We have tried to answer questions that typically arise for students and faculty in the program. Our goal is to help contribute to you having a positive, productive, inclusive, and enriching experience in the program. Please note: Information in the printed SDSU and UCSD Graduate Bulletins supersedes any other information from alternate sources, including this one.

– The MSED Steering Committee

Community Principles

Adapted from the UCSD Principles of Community, https://ucsd.edu/about/principles.html

To foster a productive and equitable learning and working environment, MSED faculty, staff and students are expected to practice the following principles:

- We value each member of the MSED community for their individual and unique talents, and we recognize that each person's effort is vital to achieving the goals of the MSED program.
- We affirm each individual's right to dignity and strive to maintain a climate of justice marked by mutual respect for each other.
- We value the cultural diversity of MSED, SDSU and UCSD, because it enriches our lives and the program. We celebrate this diversity and support respect for all cultures, by both individuals and the program.
- We are a program that adapts responsibly to cultural differences among the faculty, staff, students, and community.
- We acknowledge that our society carries historical and divisive biases based on race, ethnicity, sex, gender identity, age, disability, sexual orientation, religion, and political beliefs. Therefore, we seek to foster understanding and tolerance among individuals and groups, and we promote awareness through education and constructive strategies for resolving conflict.
- We reject acts of discrimination based on race, ethnicity, sex, gender identity, age, disability, sexual orientation, religion, and political beliefs, and, we will confront and appropriately respond to such acts.

- We affirm the right to freedom of expression in MSED. We promote open expression of our individuality and our diversity within the bounds of courtesy, sensitivity, confidentiality, and respect.
- We are committed to the highest standards of civility and decency toward all. We are committed to promoting and supporting a community where all people can work and learn together in an atmosphere free of abusive or degrading treatment.
- We are committed to the enforcement of policies that promote the fulfillment of these principles.

Useful Contact Information

MSED Co-Directors:

• (UCSD) Jeff Rabin	858-534-2904	jrabin@ucsd.edu
• (SDSU) Susan Nickerson	619-594-4338	snickerson@sdsu.edu

Graduate Advisors:

• (SDSU) Regis Komperda	619-594-0166	rkomperda@sdsu.edu
• (UCSD) David Quarfoot	(858) 534-3978	dquarfoot@ucsd.edu

MSED Student Office at UCSD	858-534-5330	York Hall 4080B
MSED Student Office at SDSU	619-594-4696	6475 Alvarado Ste 236

Administrative Assistants

• (SDSU) Debbie Escamilla	619-594-4696	descamilla@sdsu.edu
• (UCSD) Sherry Seethaler	858-534-4656	sseethaler@ucsd.edu

CRMSE Main Office

• Candace Cabral & Deb Escamilla CRMSE Office Managers	619-594-1579	crmse@sdsu.edu

When You Need Help….

With SDSU issues:

Who	For What
Regis Komperda, Graduate Advisor for MSED at SDSU	• Guidance meeting course requirements • Course substitutions (both advisors need to sign off) • Advice regarding SDSU research rotations (MSE 802), first year projects (MSE 820), & teaching practicum (MSE 805, 806, 807) • Information on science education courses available at SDSU • Professional mentor: identify experiences to help you develop important professional skills, with a focus on activities that go beyond the core course requirements • 1st and 2nd year evaluations
Susan Nickerson MSED Co-Director at SDSU	• Send MSE 801 report to Co-Director by end of Fall semester of Year 1 • Rules regarding first year projects • Second year exam – rules, content, and committees • Project placement: RA/TA for next year • Interest in working with a non-MSED faculty at SDSU • Issues that arise with an SDSU faculty member • Issues that arise with an RAship at SDSU • Dissertation proposal and committee composition • Academic probation • Leave of absence
Supervisor of your research assistantship	• Negotiation of work assignment, including vacation time • Pay issues (see Deb also) • Work-related items
Deb Escamilla, MSED Administrative Assistant	• All SDSU administrative issues • MSE schedule numbers for registration; SDSU registration issues • JDP forms • Issues related to office supplies, equipment, phone • Reserving rooms at CRMSE • Issues related to pay periods, time sheets, and health insurance • Questions about UCSD housing • SDSU Mandatory Campus Fees • Logistics, timeline and forms regarding proposal defense, dissertation, dissertation defense, graduation
Candace Cabral CRMSE Office Manager	• General office questions when Deb is unavailable

With UCSD issues:

Who	For What
David Quarfoot Graduate Advisor for MSED at UCSD	• Guidance meeting course requirements • Course substitutions (both advisors need to sign off) • Advice regarding UCSD research rotations (MSED 295), first year projects (MSED 298), & teaching practicum (MSED 294) • Information about UCSD courses

	• Professional mentor: identify experiences to help you develop important professional skills, with a focus on activities that go beyond the core course requirements • 1st and 2nd year evaluations
Jeff Rabin MSED Co-Director at UCSD	• Interest in working with a non-MSED UCSD faculty • Help finding UCSD members for second year and dissertation committees • Issues that arise with a UCSD faculty member • Issues that arise with an RA or TAship at UCSD • Academic probation at UCSD
Sherry Seethaler, Administrative Assistant at UCSD	• All UCSD administrative issues • PIN, PAC, and course registration at UCSD • Pay issues for TA or RAship at UCSD • Graduation requirements at UCSD • Concerns regarding the MSED student office at UCSD

Components of the Program

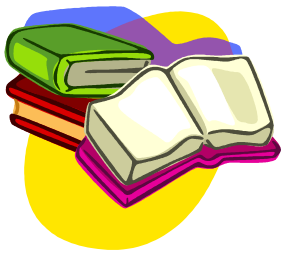
MSED is interdisciplinary in nature. Students take courses in cognitive science, sociology, philosophy, history, and psychology, in addition to taking courses and having research apprenticeship experiences in mathematics and science education research. The core course requirements address the following components and disciplines:

Cognitive Science	Mathematics & Science Education	Sociology, Philosophy, History	Research Apprenticeship Experiences	Quantitative & Qualitative Methods	Teaching Practicum

The requirements are designed to enable students to:

- develop an understanding of various theoretical perspectives on cognition and learning
- acquire knowledge, via coursework and apprenticeship experiences, of the research methods that are necessary for examining the processes of learning and teaching
- understand how people learn mathematical or scientific concepts in part by becoming familiar with existing research on learning and teaching in mathematics and science; and
- gain insight into learners' conceptions and perspectives through teaching experiences.

A unique feature of MSED is the balanced emphases on: (a) core coursework across a variety of disciplines, (b) regular research apprenticeship experiences, and (c) teaching practicum. An overview of each major area of emphasis is provided in Sections A, B, and C below.



Note: These requirements reflect a programmatic curriculum change, which goes into effect for students entering Fall 2020 or after.

A. Required Courses

Component	Courses	Description
Research Apprenticeship	Faculty Interviews (MSE 801)	During their first year, students interview 8 faculty members from both campuses and write a 1-page summary of each interview. The summaries are submitted to the SDSU MSED Co-Director.
	Three Research Rotations: MSE 802 (SDSU) ***and*** MSED 295 (UCSD)	Students have practical experience with 3 different research projects (at least one on each campus). Each rotation should involve approximately 30 hours of work. [Note: One is a rotation on the grant writing process. Then students arrange one at each campus for the other two rotations.]
	Research Project: MSE 820 (SDSU) ***or*** MSED 298(UCSD)	Students design and conduct an empirical study under the supervision of a faculty member. Students typically collect data in the summer following their first year and analyze and report their findings during the fall of their second year.
Cognitive Science	Two Courses at UCSD selected from the following; at least 1 must be at the graduate (200 level): Distributed Cognition (102A); Cognitive Ethnography (102B), Cognitive Foundations of Mathematics (152 or 252), Gesture and Cognition (155), Cognitive Science Seminar (200), Cognitive Science Foundations (203), Information Visualization (220), Seminar on Special Topics (COGS 260); Cognitive Theory (**one** of COGS101 A, B, **or** C)	UCSD is recognized internationally as a leading center of cognitive science. In courses and seminars, students will explore questions such as the following: What is the nature of intelligent activity? What are possible computational and biological mechanisms underlying such activity? What is the role of the environment (cultural and social as well as physical) in supporting and enabling cognition?

Theoretical Perspectives in Mathematics & Science Education	Seminar in Mathematics and Science Education (MSED 296 A, B, & C at UCSD)	International, as well as US, theories and research about how students learn mathematics and science from elementary school through college, what mathematics and science they are expected to learn, and ways of helping them learn (i.e., teaching them) are studied
	Learning Theories (MTHED 603 at SDSU)	The application of several major learning theories (e.g., behaviorism, Piagetian constructivism, information processing, sociocultural perspectives, and embodied cognition) to research on the learning and teaching of mathematics and science.
	Science Education Seminar (TE610C at SDSU) *required for science educators*	Research on the learning and teaching of science at the K-14 level is explored. Issues include students' conceptions (of topics in biology, physics, and chemistry), the nature of science, and experimental curricular approaches.
	Two Seminars taught at SDSU, selected from the following, *required for mathematics educators*: Mathematics in the Early Grades (MTHED 600) Mathematics in the Middle Grades (MTHED 601) Teaching Mathematics (MTHED 604) Algebra in the 7-14 Curriculum (MTHED 605) Geometry, Probability, Statistics in the 7-14 Curriculum (MTHED 606) Research on Undergraduate Mathematics Education (MTHED 607) Equity in STEM Education (MthEd 608)	In MTHED 600 and 601, students explore research in the teaching and learning of mathematics in Grades K-4 and Grades 5-8, respectively. MTHED 604 addresses the research on teaching practices in mathematics, teacher knowledge, and teacher learning. MTHED 605 and 606 students investigate the research on students' conceptions of a variety of topics in important content areas (such as geometry and algebra) at the secondary and lower-division undergraduate levels. Innovative pedagogical approaches are also investigated. MTHED 607 explores the research on teaching and learning mathematics at the undergraduate level. MTHED 608 Equity in STEM
Research Methods	Quantitative Methods: PSYC 201 A & B (UCSD) ***or*** EDS 254 & 255 (UCSD) ***or*** MA 282 A & B (UCSD) ***or***	Statistical methods and the mathematical treatment of data are explored.

	[Note: EDS 288A & 288C are also possible with a course substitution]	
	Qualitative Methods (MSE 810 at SDSU)	Qualitative methods are explored, such as clinical interviewing, verbal protocol analysis, grounded theory, design experiments, and interactional analysis.
Teaching Experience	One Teaching Practicum selected from: Assisting or teaching prospective teachers (MSE 805 at SDSU) Supervised K-12 teaching (MSE 806 at SDSU or MSED 294 at UCSD) Specially designed practicum (MSE 807 at SDSU) TA for undergraduate mathematics or science ("Content" 500 at UCSD)	Students work with a supervising faculty member to create an experience in which they will assist or teach prospective teachers, undergraduates, or K-12 students.
Experiences	Two courses from any categories are selected with advisors according to the student's needs and background: **Philosophy & History.** UCSD: Philosophy of Science (PHIL 145); Philosophy of Physics (PHIL 146); Philosophy of Biology (PHIL 147); Seminar on Science Studies (PHIL 209A); History of Science (HISC 106, 107, 108, 109, 110, 160/260, 163/263, 165).	
	Sociology. UCSD: Language, Culture, & Education (SOCI 117/EDS 117); Social Organization of Education (SOCI 126/EDS 126); Intro to Academic Tutoring of Secondary School Students and Practicum (EDS 136 & 139); Sociology of Education (SOCG 270)	
	• **Equity & Diversity.** UCSD: Chicanas/os and Latinos in Education (EDS 113), History, Politics, and Theory of Bilingual Education (125), Equitable Educational Research and Practice (250), Transforming Learning Environments (EDS 251), Transforming Inequities in Student Outcomes (252), or Talking Culture, Culture Talking: Voices of Diversity (EDS/COGR 278)	
	• **Mathematics & Science.** Graduate level courses in mathematics, chemistry, biology, or physics.	
	• **Teaching Experience**. An option for students who have not yet had teaching experiences at both the K-12 and collegiate levels is to take a second teaching practicum.	

	Other. Other types of courses (at the graduate or upper division undergraduate level) can be approved by the advisors if they contribute to a coherent program.	
Independent Research	Research Seminar (MSE 830)	Students and faculty present ongoing research for discussion and critique.
	Dissertation Research: MSE 897-899 (SDSU) *or* MSED 299 (UCSD)	Independent study and research for the doctoral dissertation.

B. Research Apprenticeship Component

The research apprenticeship strand is an important component of the required course of study. During the first semester, the student interviews eight faculty members from both campuses and writes a one-page summary of each interview (MSE 801). As a result of the interview process, the student locates two research projects of interest to them for the research rotations (MSE 802 and MSED 295). By working briefly with two different research projects, the student is introduced to the practice and culture of a variety of research projects. Near the end of the first year, the student locates a supervising faculty for the First Year Research Project (MSE 820 at SDSU or MSED 298 at UCSD) and designs a study. The data are collected and analyzed during the summer of the student's first year. The goal is for the student to begin to carry out some research tasks independently. By the end of the third year, each student presents an appropriate thesis problem for approval to the Dissertation Committee. Concurrently with the program of study, students participate in research apprenticeship experiences through their research assistantships. Students also attend seminars, colloquia, video club, and "brown bag" sessions in which faculty, students, and visiting scholars describe their research. Each of the three main components of the research apprenticeship strand is described in greater detail below.

i. Interviews of Faculty: MSE 801

The purpose of MSE 801 is to familiarize students with the research of a variety of faculty members. Students register for MSE 801 fall semester of the first year. They select (a minimum of) 8 MSED faculty from both campuses to interview by reading about the research projects on the MSED web site. All of the students who are interested in interviewing a particular faculty member are encouraged to interview that faculty at one time. Each student is responsible for

writing a summary. Students should write 2/3 to 1 page per faculty, summarizing the research interests and possibly the educational background of each faculty. Students should not cut-and-paste summaries from web sites. The reports should be personal and reflect the nature of the conversation that occurred during the interview. Students should compile eight summaries into a single document and email the report to the MSED Co-Director at SDSU no later than the last day of finals of the fall semester of their first year. Faculty can be contacted via phone or email at the numbers and addresses that follow. This is not a comprehensive list. You can interview other faculty engaged in research. Email will be the best way to reach faculty.

SDSU

Faculty	Area	Department	Phone (619)	Email
Randy Philipp	Mathematics Education	Teacher Education	594-2361	rphilipp@sdsu.edu
Lisa Lamb	Mathematics Education	Teacher Education	594-0774	Lisa.Lamb@sdsu.edu
Susan Nickerson	Mathematics Education	Mathematics & Statistics	594-4338	snickerson@sdsu.edu
Janet Bowers	Mathematics Education	Mathematics & Statistics		jbowers@sdsu.edu
Chris Rasmussen	Mathematics Education	Mathematics & Statistics	594-1584	crasmussen@sdsu.edu
Joanne Lobato	Mathematics Education	Mathematics & Statistics	594-2957	jlobato@sdsu.edu
Bill Zahner	Mathematics Education	Mathematics & Statistics	594-7247	bzahner@sdsu.edu
Daniel Reinholz	Mathematics Education	Mathematics & Statistics		daniel.reinholz@sdsu.edu
Mary Pilgrim	Mathematics Education	Mathematics & Statistics		mpilgrim@sdsu.edu
Michael O'Sullivan	Mathematics	Mathematics & Statistics	594-0175	mosullivan@sdsu.edu
Rich Levine	Statistics	Mathematics & Statistics		rlevine@sdsu.edu
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Scott Kelley	Biology	Biology	594-5371	skelley@sdsu.edu
Donna Ross	Biology Education	Teacher Education	594-4494	dlross@sdsu.edu
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Dustin Thoman	Psychology & Science Ed	Psychology	594-2273	dthoman@sdsu.edu
Alexander (Sasha) Chizhik	Educational Psychology	Academic Affairs	594-1222	achizhik@sdsu.edu

Katie Schenkel	Science Education	Teacher Education		kschenkel@sdsu.edu
Melissa Navarro	Dual Language and English Learner Education	Dual Language		mnavarro4@sdsu.edu
Marva Cappello	Language & Literacy	Teacher Education	594-1322	cappello@sdsu.edu
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J. Luke Wood	Chief Diversity Officer	Division of Diversity & Innovation	594-0167	luke.wood@sdsu.edu

UCSD

Faculty	Area(s)	Department	Phone (858)	Email
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Stacey Brydges	Chemistry & Science Education	Chemistry & Biochemistry	246-0993	sbrydges@ucsd.edu
Thomas Bussey	Biochemistry Education	Chemistry & Biochemistry	822-6665	tbussey@ucsd.edu
Stanley Lo	Biology & Biology Education	Cell/Developmental Biology	246-1087	smlo@ucsd.edu
Lisa McDonnell	Biology & Biology Education	Cell/Developmental Biology	246-0890	lmcdonnell@ucsd.edu
Melinda Owens	Biology Education & Neurobiology	Neurobiology		mtowens@ucsd.edu
Amanda Datnow	School policy, equity, reform	Education Studies	534-9598	adatnow@ucsd.edu
Chris Halter	Mathematics Education	Education Studies	534-8186	chalter@ucsd.edu
Alan Daly	Social network theory	Education Studies	822-6472	ajdaly@ucsd.edu
Beth Simon	Computer Science Education	Education Studies	246-2592	esimon@ucsd.edu
Sherice Clarke	Classroom discourse, equity	Education Studies	246-2594	snclarke@ucsd.edu
Claire Meaders	Biology Education	Cell and Molecular Biology		cmeaders@ucsd.edu
Thandeka Chapman	Multicultural Education	Education Studies		tkchapman@ucsd.edu
Laura Stevens	Math & Math Education	Mathematics	534-5864	stevens@math.ucsd.edu
Jeff Rabin	Math/Math Ed/ Physics	Mathematics	534-2904	jrabin@ucsd.edu
John Eggers	Mathematics/TA training	Mathematics	534-4239	jeggers@ucsd.edu
David Quarfoot	Mathematics Education	Mathematics	534-3978	dquarfoot@ucsd.edu
Rafael Núñez	Cognitive Science	Cognitive Science	822-5253	rnunez@ucsd.edu

Gail Heyman	Social cognition	Psychology	822-2482	gheyman@ucsd.edu
Dave Barner	Language & conceptual development	Psychology	246-0874	barner@ucsd.edu
Caren Walker	Cognitive development	Psychology	246-2434	carenwalker@ucsd.edu
Emma Geller	Learning & instruction in math/science	Psychology		egeller@ucsd.edu
Morana Alàc	Communication	Communications; Science Studies	534-7229	alac@ucsd.edu
Mia Minnes	Computer Science Education	Computer Science & Engineering		minnes@eng.ucsd.edu
R. Sekhar Chivukula	Physics	Physics	246-3056	rschivukula@ucsd.edu
Adam Burgasser	Physics	Physics	822-6958	aburgasser@ucsd.edu

ii. Research Rotations: MSE 802 at SDSU & MSED 295 at UCSD

Purpose. The purpose of the research rotations is to introduce students to the practice and culture of a variety of research projects. The rotations should serve primarily as research experiences rather than as experiences in curricular design or teacher professional development.

Background. The rotations are part of the research apprenticeship component of the MSED program, which includes MSE 801, 802, and 820. While interviewing eight faculty members for MSE 801, students identify two research projects to investigate in greater depth in their rotations (MSE 802/MSED 295). Later, students focus on one project and develop research skills by collecting and analyzing data for their first year research project (MSE 820/MSED 298).

Expectations. Students arrange two research rotations – one on each campus. Each rotation should entail a total of approximately 30 hours of work. Before the rotation begins, the student meets with the supervising faculty member of the rotation to reach an agreement regarding the specific tasks that the student will perform. To familiarize the student with a research project, the faculty member may ask the student, as part of the rotation, to attend research team meetings, read the grant proposal, and discuss research papers emanating from the project. To become immersed in the practices of the research group, the student may be asked to perform some typical activities of the group. These could include activities similar to the following: (a) transcribing video-taped data and describing the subjects' ways of thinking, (b) interviewing a "practice" subject, (c) designing interview tasks, (d) locating and summarizing literature sources, or (e) coding a small subset of data using an extant coding system. Examples of activities that extend beyond the scope of a rotation and are *not* recommended include the following: (a) writing or presenting a paper with a faculty member, (b) conducting analysis without a given coding system, (c) expecting the student to collect usable interview data for the project. In some circumstances, the faculty member may

develop an interest in working with the student to do something like presenting a paper at a conference, but that additional work should be separate from the completion of the rotation. Finally, at the conclusion of the rotation, the student needs to prepare a brief written report (2-3 pages) of his or her reflections on the experience. The third rotation is the same for all Year 1 students and focuses on learning about the grant writing process. Activities include researching externally funded grant programs, reading sample grant proposals, and becoming knowledgeable about the panel review process. A faculty member from either campus will lead this rotation.

Process. For two of the rotations, the student identifies an MSED faculty member who is conducting research of interest to the student and who is willing to supervise a rotation. The student arranges a meeting with the faculty member, in which they agree upon the specific nature of the rotation activities. Prior to the start of the rotation, the student creates a short description of the agreed-upon activities and emails it to both the faculty member and the MSED Co-Directors. Tacit agreement from the faculty member is assumed unless the faculty member responds. The student registers for a 1-unit MSED 295 with the supervising UCSD faculty member or a 1-unit MSE 802 if the supervisor is at SDSU. After completing the rotation, the student sends the written reflection to the supervising faculty member who submits a grade of "satisfactory" or "unsatisfactory" at UCSD; "credit" or "no-credit" at SDSU. If the rotation is not satisfactorily completed, the co-director will help resolve any difficulties. Students cannot receive pay for working on a research rotation.

iii. First Year Research Project: MSE 820 or MSED 298

The goal of the first year research project is to provide students with an opportunity to conduct independent (yet supervised) research in a low stakes environment. For example, it's not desirable if the first time a doctoral student operates a video camcorder to tape an interview to be for his or her dissertation study. The project allows students to gain additional research skills, under a research apprenticeship model. The emphasis is on the doing of the research rather than the report. An important part of the project is the opportunity for students to create their own research questions. They are also usually generating the study design.

Additional details follow:

- Data Collection
  - Using extant data is allowed
  - If you use extant data, then greater effort on analysis is expected

- Supervisor
  - Select and ask a faculty member from either campus to supervise the project

- Negotiate the research design and questions
- Check in to get assistance on data analysis but research should be your own; this is not intended to be collaborative research such as that performed during a research assistantship on a project.
- Submit a report to the faculty member.
- Supervisor does not have to be your RA supervisor or eventual dissertation chair

- Report
  - Minimum of 15 pages are required but most are longer, especially qualitative studies.
  - Follow standard research study format: intro, lit review or theoretical framework, methods, findings, discussion
  - Use APA style
  - Must be single authored

- Deadlines
  - Shoot for completing by beginning of Fall semester
  - Must complete by the end of Fall semester/quarter. No incompletes are allowed except in the case of an unforeseen, prolonged, documentable medical problem.

- Registration
  - Although you will complete the work in the summer, you register in fall.
  - If the supervisor is an SDSU faculty member, register for 3 units of MSE 820; If the supervising faculty member is from UCSD, register for 4 units of MSED 298

- Human Subjects Protection (IRB)
  - Because this is a course project you are not required to submit an IRB protocol. However, if you are using school age students as participants in your study, it is advisable to use a parental permission form and child assent form.
  - When you collect data as a class project without IRB approval, then you are not able to publish that data (unless you submit an IRB for the use of extant data at a later date). Thus, if you think this project may be publishable at a later date (which is rare), then you should obtain IRB approval prior to data collection
  - If you are collecting this data as part of your supervising faculty's IRB-approved research, then you may need to submit a modification to cover this study.

- Publishing

  Once in a while, a student will submit a substantially revised version of a first year project for publication in a book or journal or to a refereed conference. If so, the revisions should be done after the project is submitted and approved. If additional authors are brought on, that should also occur after the project is submitted and approved.

C. Teaching Component

The MSED program balances theoretical coursework and research experiences with a required teaching practicum. The practicum affords opportunities for practical teaching at a variety of educational levels from elementary education through college and pre-service and in-service

education. As a result, most MSED graduates are prepared to work with prospective teachers in addition to conducting high-quality research. One teaching practicum is required, and a second practicum can be conducted as one of the tailored experiences. The requirements for a teaching practicum can be fulfilled by completing any of the following experiences:

- Assisting or teaching a course for prospective teachers (MSE 805 at SDSU)
- Supervised K-12 school-based teaching (MSE 806 at SDSU; MSED 294 at UCSD)
- Specially designed internship in a non-academic setting such as a science museum, a software company, or a testing company (MSE 807 at SDSU).
- Teaching assistantship for an undergraduate mathematics or science course ("Content" 500 at UCSD; e.g., Math 500 or Physics 500).

Additional features of a teaching practicum include the following:

- The experience needs to be meaty enough to count as the equivalent of 3 semester units (at SDSU) or 4 quarter units (at UCSD). However, there are no strict rules regarding the number of hours to be invested. Students register for the practicum on the campus of the faculty supervisor for the experience.

- In general, students are not allowed to draw a salary in addition to what they earn as their MSED stipend for a teaching practicum. Students who TA a class for the SDSU Department of Mathematics and Statistics can register for MSE 805 and have this teaching experience count as one teaching practicum. For example, C. David Walters taught Math 210 during his first year in the program. He registered for MSE 805 and earned credit for it by teaching Math 210. Students whose regular work assignment for MSED is teaching in the Mathematics Department at UCSD can sign up for Math 500 to earn the teaching practicum. This is allowed for only one practicum. If these students want to do a second teaching practicum as a tailored experience, then it needs to be a different teaching practicum option. If a student who has an RA-ship also wants to be the teacher of record for a class like Math 210, this is possible but the student cannot draw a second salary. Additionally, students should not seek out, for example, a paid teaching experience in the community for the summer and expect that to count as a teaching practicum.

- As an example of a typical practicum, consider the MSE 805 experience of an MSED graduate, Ovie Soto. Ovie worked with Chris Rasmussen on the Math 414 course for preservice secondary teachers. Ovie attended most class periods for the first month or so and watched Chris teach and got to know the students. While that was happening, he designed an innovative 3 week unit on quadratic functions. Then he taught the unit on his own and graded the exam

for that unit. He continued to participate once or twice more per week until the end of the semester and then did a write-up. In a second example, Charles Hohensee co-taught Math 313 with Joanne Lobato. The two met with regularly to plan, create new activities, and debrief after each class. Charles also did 50% of the teaching. That's more than what students are required to do, but the point is that the experience is one that is negotiated between the faculty supervisor and the student.

- There does need to be some type of write-up but the nature of that report can be negotiated by the supervisor and student, and the write-up does not need to be submitted to anyone in addition to the supervisor.

- The practicum should be negotiated before the start of the semester so that the student can sign up for the course listed under that faculty member's name.

- If a student does a teaching practicum in a local school, they need to make preparations at least a month in advance of the start of practicum to allow time for school district requirements (e.g., paper work, TB test, fingerprints, etc.)

- Many students don't complete the teaching practicum until late Year 2 or in Year 3, focusing instead on courses and the research apprenticeship strand requirements the first two years.
- One teaching practicum is required. However, if a student doesn't have much teaching experience, they can take a second one as one of their tailored experiences (with consultation from the graduate advisors).

Course Requirements and Substitutions

A. Course Requirement Checklist

The following checklist is provided to assist students in determining if they are on-track meeting the MSED course requirements.

Course	University/ Number of Units	Date done	Grade	When do you plan to take?	Course Substitution?
MSE 801: Interview 8 faculty	SDSU, 1 unit				
MSE 802 (SDSU) or MSED 295: 3 research rotations	Grant-writing process rotation plus 1 at each campus; 1 unit each				
MSE 820 (SDSU) or MSED 298 (UCSD): First year research project	3 units at SDSU; 4 units at UCSD				
MSED 296A, B, & C: Doctoral Seminar	UCSD, 4 units per class				
MthEd 603: Learning theory	SDSU, 3 units				

● For math: 2 of MthEd 600, 601, 604, 605, 606, or 607, 608 ● For science: TE 610C	SDSU, 3units each				
Quantitative Methods: PSYC 201 A&B or EDS 254 & 255 or MA 282 A&B [or EDS 288A & 288C with course substitution]	UCSD; 6 units per class for PSYC 201; 4 units each for the other classes				
MSE 810: Qualitative Methods	SDSU, 3 units				
Cognitive Sci: Two UCSD courses from the following (1 must be 200 level): COGS 102A, 102B, 155, 152 or 252, 200, 203, 220, 260, or **one** of COGS 101A, B or C	UCSD, 4 units each				
ONE Teaching Practicum: o MSE 805 o MSE 806 or MSED 294: K-12 teaching o MSE 807 o "Content" 500: teaching in the discipline, UCSD	MSE courses - SDSU, 3 units MSED 294 and Content 500 - UCSD, 4 units				
Tailored experiences, choose 2 w/ advisor:	Most UCSD courses are 4 units; most SDSU courses are 3 units; EDS 136 & 139 is 6 units in all.				
Phil/Hist. PHIL 145, 146, 147, 209A; HISC 106, 107, 108, 109, 110, 160/260, 163/263, 165.					
Sociology. SOCI 126/ EDS 126; SOCI 117/ EDS 117; EDS 136 & 139; SOCG 270					
Equity/Diversity. EDS 113, 125, 250, 251, 252, 278					
Math/Sci. Grad courses in math or sci					
Teaching. A second practicum.					
Other.					
MSE 830: Research Seminar	SDSU, 3 units				
Total UCSD Credits (36 units required): _____ (max of 12 units at 100 level; lower div undergrad courses do not count) **Total SDSU Credits (18 units required): _____**					

B. Course Substitution Process

To substitute a course for a required course, a student must first prepare a written request for the course substitution (using the Course Substitution Form that follows). The request must include a rationale for the substitution and explain how the new course fits into the student's MSED program. The student submits the request to both SDSU and UCSD Graduate Advisors. If both advisors approve, the student submits the form to Debbie Escamilla, who will place the documentation of approval in the student's file. Approval must be obtained *before* the beginning of the course.

Course Substitution Form

Student Name _____

Semester and Year of Change _____

Substitution _____
(course name and number)

Replacing _____
(course name and number)

Reason for Change:

Approved by:

_____ _____
SDSU Graduate Advisor's Signature UCSD Graduate Advisor's Signature

_____ _____
Date Date

C. Course Descriptions (prepared by MSED students)

COGS 152: Cognitive Foundations of Math (4 units) with Postdoctoral Fellow Tyler Marghetis. This is the undergraduate level version of this course; the graduate version is COGS 252. With the disclaimer that Nuñez (the usual professor) teaches differently: this course covered several different elements of cognitive science research (historical as well as modern) in direct relationship to mathematical cognition and development. (Written by Naneh Apkarian; course taken in Spring 2014)

COGS 155: Gesture and Cognition (4 units) with Professor Rafael Nunez - This class investigates gesture types as well as the reasons why humans produce spontaneous co-speech gesture, i.e. gesture that occurs without conscious thought in normal conversations. It covers hypotheses of the origin of gesture as well as some of its mechanisms, such as conceptual metaphor. The end of the class covers gestures made by mathematics graduate students and faculty when illustrating advanced concepts in mathematics. A major theme of the course is how spontaneous co-speech gesture can be used to more directly investigate thought processes as it is non-conventionalized and not as strongly affected by culture (in comparison to language). (Written by Tina Marcroft; course taken Fall 2017.)

COGS 200: Cognitive Science Seminar (4 units) with CogSci graduate students. This course is a graduate-level seminar offered every quarter, but the topic changes depending on the interests of the individual(s) organizing it. The theme of the class during the quarter I enrolled in (Fall 2018) was Social Impacts of Cognitive and Information Sciences. Some of the topics discussed throughout the quarter included the impact of social media bots, cognitive linguists in framing public policy, and transhumanism. The class met once a week for three hours. 2-3 articles/readings were assigned each week. Students were expected to facilitate a discussion at least once during the quarter. In addition to doing the readings, students were also expected to submit 2-3 questions regarding the papers. These questions were then used as discussion starters during class. If taking the course for a letter grade, a final paper regarding a relevant topic of your choice was required. Group discussions were held for the first hour of class. For the remainder of the time, a guest speaker presented their related, current research. This course attracted graduate students from many different disciplines, including philosophy and engineering. Additionally, the organizers of the course were also graduate students in the cognitive science department. Thus, the environment was comfortable and it was relatively easy to speak up. However, because my background did not overlap fairly well with the content of this class, I often found myself doing additional research about the readings/topics in order to meaningfully contribute to conversations. On a more positive note, I enjoyed the stimulating discussion regarding the past and future of ethics in human research, which was a thread that appeared in almost every class. (Written by Nicole Suarez; course taken Fall 2018).

COGS 200: Cognitive Science Seminar (4 units) with Professor William Bechtel. This seminar is offered most quarters and changes topics based on the current instructor's interest. It tends to follow a similar format: the class meets once a week for 3 hours; the first two hours involve discussions based on a few readings, and the last hour is a talk given by a visiting scholar who authored one of the readings for the week. The class tends to bring in prominent scholars in cognitive science and related fields. Because the themes for each quarter cater to a wide audience,

doctoral students from a variety of departments enroll, and consequently, the conversations are truly excellent. (Written by David Quarfoot; course taken Fall 2012)

COGS 203: Cognitive Science Foundations: Theories and Methods in the Study of Cognitive Phenomena (4 units) with Professor Seana Coulson. This course covers a variety of theoretical and methodological approaches to the study of human cognition. The purpose of the course is to give first year cognitive science students a sense of where cognitive science has come from, what they know now, what methods they use, and where research might lead us. Topics include reasoning, categories and concepts, representations and imagery, memory, analogy and mental models, conceptual metaphor theory, and a few more recent topics. (Written by Raymond LaRochelle; course taken Fall 2014)

COGS 220: Information Visualization (4 units) with Professor Jim Hollan. This graduate-level seminar course covers ways in which information can be visualized through graphics. The course begins with a survey of graphical display techniques, accompanied by the affordances and obstacles of each. The coursework consists mainly of readings and responses, as well as a final project. (Written by Naneh Apkarian; course taken in Winter 2014)

COGS 260: Seminar on Special Topics with Dr. Lera Boroditsky. The COGS 260 course topic is dependent upon the specialty of the professor teaching each section. For Dr. Lera Boroditsky's COGS 260 section, she routinely offers a seminar focused on Language and Cognition, or how our native language and learned languages can shape the way we think. This course offers some helpful insights for those interested in ESL education or other language research. The course primarily consists of reading and discussion, particularly focusing on Dr. Boroditsky's own writings, so some background knowledge of the cognitive sciences field and literature would be a useful for students hoping to gain a rich experience from this course. I would recommend those considering this course to watch Dr. Boroditsky's 2018 TED talk, as many of the topics routinely covered in the course are highlighted in this talk. The professor's primary focus seemed to be on her research, and although very interesting, those seeking a more collaborative or rigorous class experience might want to consider another course. (Written by Makenna Martin; course taken in Winter 2019).

COGS 260: Seminar on Special Topics - Auditory Learning/Plasticity (4 units) with Professor Sarah Creel. This class discusses topics relating to auditory perception, with a large focus on younger children and infants. The course includes both graduate students and undergraduates. Other topics covered included music learning, relations to language learning, dysfluencies like stuttering, etc. The course also covers the major papers suggesting a correlation between music training and reading ability. A background in linguistics is helpful (but not necessary) for understanding the literature in this class. The topics covered in this class are flexible and students vote on them early in the course. (Written by Tina Marcroft; course taken Winter 2018.)

COGS260 – Seminar on Special Topics: Interacting "Like a Human Being" with Professor Federico Rossano. This is a graduate level course in the cognitive sciences department. In addition to three MSED students enrolled in the course, there were two COGS PhD students, one Clinical Psychology PhD student, and one COGS undergraduate. Topics covered in this course included: shared cooperative activates and shared intentionality, early attempts to study social interaction,

turn-taking, talk sequence organization, repair, social manipulation, and many others. The readings for this course are heavy, with four readings per week. The discussion is set up with two students presenting each week and each student presenting two of the articles assigned. Students were expected to present at least twice during the quarter. In addition to this, there was a mid-term that consisted of three questions and required 500 word responses each, and final paper in which you could either create an experimental study proposal or a literature review related to one of the topics that were presented in the course. This course met once a week for 2 hours and 50 minutes. (Written by Lauren Stewart; course taken Spring 2018).

ECE 271A: Statistical Learning 1 (4 units) with Professor Nuno Vasconcelos. This is a graduate-level course that focuses on the theoretical development and implementation of advanced ideas from machine learning (using Bayesian models). Before enrolling, students must be strong in mathematical probability, multivariable calculus, statistics, computer programming, and introductory concepts from machine learning. The class has five written problem sets which include a mix of theoretical exercises and programming tasks (which must be done in MatLab). In Fall 2013, the programming component involved training a computer to identify which pixels in an image where part of a cheetah, and which were part of the African scenery around it. As the class progressed, increasingly-sophisticated techniques were used to improve the classification accuracy. The course is mostly doctoral students involved in programming, machine learning, and computer engineering, and is not for the faint of heart. (Written by David Quarfoot; course taken Fall 2013).

EDS 125: Bilingual Education (4 units). I enjoyed this course. The students were almost entirely undergraduate education majors, which meant that the course emphasized application. We covered the history of bilingual education, considered contemporary examples of successful programs, and discussed the political, social, and other implications of multilingual instruction. The course was certainly organized more like an undergraduate course with weekly in-class attendance assignments and a variety of presentations, visual pamphlet or poster projects, written work, and an emphasis on small group discussion. (Written by Katie Bjorkman)

EDS 126: Social Organization of Education (4 units) with Professor Amy Binder. This is an undergraduate-level lecture course which covers the social structures of education at all education levels, with an emphasis on university-level education. This course met twice a week for an hour and 20 minutes. Topics for this class include: tracking, gender-related issues, social norms, socioeconomic issues, and school-prep and exam-prep programs. The course work consists of ten pop quizzes, a mid-term, term paper, and final exam. The exams are three essay questions. One of the texts assigned for this course is "Paying for the Party" by Armstrong and Hamilton. This book was the focus of much of the first-half of the quarter. I encourage those interested in taking the course from this instructor to read more about this text. (Written by Lauren Stewart; course taken Fall 2016).

EDS 136: **Education in urban schools (6 units) with Lecturer Luz Chung.** This course counted toward a Sociology Tailored Experience. It covered a wide range of topics that teachers in public schools must face. The topics included No Child Left Behind and the effects of NCLB, issues with tracking and de-tracking, English learners, learners with disabilities, inclusion practices, LGBT and gender issues, identity and culture issues, teacher training issues, school resources, and

methods for fostering engaging learning environments for a diverse classroom. The class includes tutoring for 40 hours at a low-income school in San Diego, and along with weekly readings you will interview your host teacher about the various topics, and later complete a project that helps out his/her class in some way. If you want to learn more about issues in public education (and in particular, low income public schools), then I recommend this course. You'll want to get in touch with Luz Chung at least 6 weeks in advance. It took a while for my background check and clearance to go through, and she says that's pretty normal. (Written by Raymond LaRochelle; course taken Spring 2014).

EDS 251: Transforming Learning Environments (4 units) with Dr. Sherice Clarke. This class is similar to MthEd 603 (SDSU) in the sense that it covers a range of learning theories including IP, Situated Cognition, Distribution Cognition, and Sociocultural theories. We do not however cover the learning theories in as great of detail as we do in MthEd603. We discuss these theories from a critical race lens, which is a very interesting and different exposure than we usually get from our other class. The goal of this class is to identify some problem of practice, and then propose a design for a learning environment to confront the problem that is based in the principles of a chosen learning theory. There are about 3 readings and 1 written assignment per week. This class would be great to take during the second year as the student in preparing for the second year exam, and after (or during) taking MSE 810. There is a clear link between this class and what we learn in MSE 810 about design-based research. (Written by Amelia Stone-Johnstone; course taken Winter 2019)

EDS 252: Transforming Inequities in Student Outcomes (4 units) with Dr. Thandeka Chapman. This is a great class for anyone who is interested in how power and privilege shape learning experiences. The class explored how institutional and systemic challenges have historically influenced "student outcomes", particularly students from underrepresented or minoritized backgrounds. Furthermore, the class drew heavily from critical race theories and its sub disciplines (e.g. Latinx Critical Theory, Tribal Critical Race Theory), thus there was a focus on the lived experiences of students of color in the USA. Some topics included social capital, tracking emergent bilinguals, immigration, charter schools, and funds of knowledge. In terms of coursework, we wrote five reflections, one presentation, a midterm that focused on the challenges of an educational challenge, and a final that provided new insights and directions for that educational outcome. This class does not sugarcoat these conversations. Personally, I liked that the class was like that. However, I can see how that can make people uncomfortable, especially people who shy away from "diversity" conversations or are uncomfortable acknowledging their privilege. Written by Kevin Pelaez; course taken Fall 2018).

EDS 253: Transforming Educational Systems and Policy (4 units) with Dr. Frances Contreras. The purpose of the course was to explore the policy implications of our research interests. I'd definitely recommend it for anyone who is interested in learning more about the "behind the scenes" of our current educational policies. It provided an overview of education policies that have influenced our current education continuum from a critical perspective, including topics like access to pre-K, the Every Student Succeeds Act (ESSA), language policies, and college transfer. Every week, we were expected to write a concise policy analysis paper of the class readings. Since each week was a different topic, we didn't have time to deeply analyze every policy and key issue. However, the midterm and final were great opportunities for us to write a

critical and in-depth analysis of a topic that included providing critiques and recommendations on how to transform educational settings. (Written by Kevin Pelaez; course taken Spring 2019).

EDS 254: Introduction to Quantitative Analysis with Dr. Carolyn Hofstetter. This course is one of a two-course series of graduate-level courses dedicated for students in UCSD's Education Studies PhD program. The primary goal of EDS254 was to learn about and how to apply basic statistics (descriptive statistics, variance, standard deviation, correlation, ANOVA, etc.), understand the requirements for statistical analyses and learn how to use SPSS. For EDS254, we were required to present a quantitative study that used the statistical tool that we were discussing for that week. Dr. Hofstetter encouraged us to present an article that was in our area of interest. There was an interim paper for EDS254 required us to conduct analyses on a large dataset of our choice. We were required to submit a literature review and analysis of the data using the statistical tools that we covered during the quarter. (Written by Lauren Stewart; course take Winter 2017)

EDS 255: Advanced Quantitative Analysis with Dr. Carolyn Hofstetter. This is part two of a two-course series of graduate-level courses dedicated for students in UCSD's Education Studies PhD program. The primary goal of EDS255 was to learn about advanced statistical techniques and how to apply these techniques to the data. Topics discussed during this quarter included: propensity score analysis, hierarchical linear modeling, structural equation modeling, validity and reliability, etc. Like for EDS254, we were required to present a quantitative study that used the statistical tool that we were discussing for that week. The final assignment for this course was to continue our analysis of the data from our interim papers. For the final paper, we were expected to expand on our previous literature review and use the more advanced statistical methods to analyze the dataset. (Written by Lauren Stewart; course taken Fall 2018)

HISC 110: Historical Encounters of Science and Religion with Professor Robert Westman. This is an upper division undergraduate course that is often taken by undergraduates in science and in history. There were approximately 15 students in the course, with zero undergraduates. The assignments for this course were an in-class mid-term and a take-home final. The mid-term had a mixture of multi-choice and short (one-page) essay questions. The final was 10-page essay. The content for this course was focused heavily on the relations between the church and the university throughout history. Scientists that this course highlighted include: Pythagoras, Newton, Copernicus, Galileo, Kepler, and Ptolemy. The course begins with the modern-day university structure and then compares this with the early (first) university structure. (Written by Lauren Stewart; course taken Spring 2017).

PHIL 124: Philosophy of Mathematics (4 units) with Professor Paolo Santorio. This course focused on discussions of the metaphysics and epistemology of mathematics from 1879 to present day. It was separated into two main units that follow the historical development of the philosophy of mathematics. There is a prerequisite logic course, but Professor Santorio waived it for me and a couple other mathematics majors in the class. There are a lot of dense readings, weekly quizzes, and 3 papers due across the quarter. (Written by Mike Foster; course taken Spring 2019)

PHIL 145: Philosophy of Science with Professor Christian Wuthrich. This class is mostly upper-level undergraduates with a few graduate students. It covers the historical and ethical movements in the philosophy of science. In essence, the class explores what it means to "do

science" and how people should think about the notion of truth vis-à-vis scientific exploration. Beginning with Plato and Aristotle, it progresses chronologically through scholars like Hume, Newton, Popper, Lakatos, and Kuhn. The class is an excellent choice for both mathematics and science students, offering a philosophical lens to think about educational issues. (Written by David Quarfoot; course taken Fall 2013)

PHIL146: Philosophy of Physics with Professor Craig Callender. This course is mostly taken by undergraduate students. The course focuses on the philosophical foundations of dynamics. It begins with classical mechanics and some puzzles about determinism, action-by-contact, and locality. Then the course introduces probability and dives into thermodynamics, statistical mechanics and the problem of the direction of time. The course then investigates the strange quantum world, looking first at the notorious quantum measurement problem (the Schrodinger's Cat problem) and then one of the oddest phenomena in the world, Bell non-locality. Since quantum mechanics have always been taught to students as a "recipe" for predicting phenomenon rather than a physical theory (i.e. theorizing what is the material world made of and how it behaves), this course provides a fresh perspective and discuss different interpretations of quantum mechanics in addition to the popular Copenhagen interpretation. These topics are deep ones that have attracted some of the all-time greatest thinkers in the history of science and philosophy, e.g., Laplace, Boltzmann, Maxwell, Russell, Einstein and Bell. There is no prerequisite for the course. A tolerance for math is important, however, as the course dives into physics. (Written by Ted Wang; course taken Fall 2018).

PSYC 201A/B: Quant Methods in Psych I/II (6 units per course) with Professor Ed Vul. This is a 6-unit statistics course offered by the psychology department at UCSD (the extra credits are due to a lab section). This course covers the statistical methods used most frequently in social science research, and so is applicable to almost all areas of research interest. The lab section is aimed at learning to use R, an open-source programming language and software environment for statistical computing and graphics. (Written by Naneh Apkarian; courses taken in Fall '13 and Winter '14)

SOCG 255C: Colloquium in Science Studies. Science Studies is an interdisciplinary program integrating the perspectives developed within the communication of science, history of science, sociology of science, and philosophy of science. Colloquium in Science Studies, generally featuring instruction by two Science Studies faculty from different disciplines, form a major arena of interdisciplinary work. Participants include not only program members but also other graduate students from the natural sciences, social sciences and humanities. In the seminars, students and faculty of differing disciplinary backgrounds do more than simply exchange views. Rather, they open their own understandings to critical examination by members of other disciplines, and thus enrich their conceptions of a productive approach to studying the sciences. Topics presented in the colloquium varies each week, ranging from how infrastructure construction and maintenance impact different local communities to how machine learning algorithms can be utilized to investigate the gerrymandering of different states. (Written by Ted Wang; course taken Winter 2019).

SOCI 138: Genetics and Society (4 units) with Professor Ramya Rajagopalan. This course covers the history of our conceptions of inheritance. The class describes a range of dominant opinions and discourse regarding the level to which genetics influences complex human behaviors and how those opinions have changed over time. We discussed topics such as soft heredity, geneticization, the development of the Americans with Disabilities Act, genetic discrimination, and the ethics of new technologies such as gene drives and genome sequencing. The class also discusses the relationship between biologists/doctors and marginalized groups, and how the dominant discourse influenced their interaction over time. This class is strongly focused on human biology and only very briefly discusses conceptions of genes and genetics in detail. While this class may not be helpful for exploring conceptions of specific topics within genetics, it is more helpful for exploring dominant narratives and attitudes that may influence student (and instructor) thinking about human heredity and evolution as well as discussing ethics in conducting human research. (Written by Tina Marcroft; course taken Winter 2019.)

Responsible Conduct of Research Requirement

All students employed as research assistants on grants from the National Science Foundation or the National Institute of Health are required to complete online training on the Responsible Conduct of Research from Collaborative Institutional Training Initiative (CITI). Beginning Fall 2019, all students employed by NSF grants housed at SDSU must complete this training prior to the beginning of their work assignment. Proof of completion of the training will be required during the on-boarding process at the SDSU Research Foundation. Students who are funded on RAships with CA State Funds but are working on NSF/NIH grants, or are funded by NSF or NIH grants at UCSD also need to complete the training. It's just that the reporting requirement is different; the training is acknowledged on your yearly UCSD evaluation forms, and the Principal Investigator (PI) for the grant you are working on will submit proof of training to the IRB.

Training instructions for those students funded by NSF or NIH grants based at SDSU follow:

1. Go to the CITI web site: https://about.citiprogram.org/en/homepage/
2. If you are a first-time user click "Register" in the top right corner or click "Log In" if you already have an account with CITI.
3. If you have clicked "Register", please select "Log in Through My Institution"
    a. Scroll down and select "San Diego State University"
    b. Log in with your SDSU ID (@sdsu.edu) and Password
4. When you have logged in, select "View Courses"
    a. If you have registered previously with another institution, select "Add Affiliation" and add San Diego State University. SDSU should now show up under your Institutional Courses and you will click on "View Courses"
5. Go down to the bottom of the page and select "Add a Course"

6. Scroll down to Question # 4: Responsible Conduct of Research
    a. Select the box for "Basic RCR (RF ONLY) and click submit at the bottom of the page
7. Select "Start Now" to start the Basic RCR (RF ONLY) training
8. There are 6 required modules and one Supplemental Module (optional). You must complete all 6 required modules including a quiz at the end of each. An average quiz score of 80% is required to receive a course completion certificate. You may go back and retake a quiz as many times as you wish before moving on to the next module.
    a. Authorship (RCR-Basic)
    b. Collaborative Research (RCR-Basic)
    c. Conflicts of Interest (RCR-Basic)
    d. Data Management (RCR-Basic)
    e. Research Misconduct (RCR-Basic)
    f. Plagiarism (RCR-Basic)

    Supplemental Module (Not needed for completion certificate)

    g. Research, Ethics, and Society
9. Once completed, you can download and print or save your certificate. You will also be emailed a copy from CITI. Please email this certificate to dra@sdsu.edu and explain your affiliation with the program.

Advising, Course Scheduling & Registration

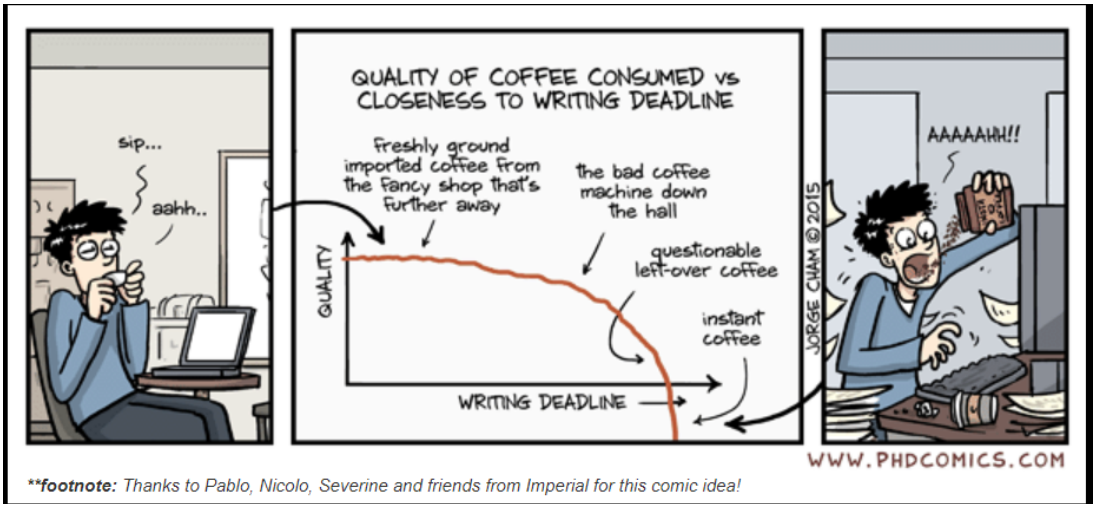
A. Graduate Advising

New students are assigned a pair of advisors, consisting of one Graduate Advisor from SDSU and one Graduate Advisor from UCSD, to assist them during the first two years of the program. A plan for the entire academic year should be prepared at the beginning of each year with the advisors; then the plan can be modified as needed (for example, after quarterly course offerings are posted). Substitutions need to be approved by both advisors. Graduate advisors also serve as professional mentors, helping students identify experiences that go beyond core course requirements and develop important professional skills.

B. Planning a Course Schedule

The following information will help students schedule particular courses:

- The *Seminar in Mathematics and Science Education* (UCSD MSED 296ABC) is offered alternate years (odd year fall start – Fall 2021, 2023, etc.).
- The *Seminar in Research Design* (SDSU MSE 810) is offered during alternate years (even year spring semester – Spring 2021, 2023, etc.).
- The *Research Seminar* (SDSU MSE 830) should be taken during the fall or spring semester of the third year or fourth year, depending upon which semester it is being offered. It is offered during alternate years. The next planned offering is Fall 2021.
- *MthEd 603 (Learning Theories)* is always taken Fall of Year 1 in a student's program.
- *Faculty Interviews* (MSE 801) should be completed during the first semester. Some interviews may be conducted before the start of fall semester. Interviews may be conducted with other MSED students, as long as each student writes their own report of the interview.
- *Research Rotations* (SDSU MSE 802 and UCSD MSED 295) should be completed during the first year, though students can register in the fall of their Year 2 for a rotation completed in the summer of Year 1. Students should enroll at the campus where the research rotation is offered. One rotation must be completed at each campus. The third rotation is about the grant-writing process and is currently being offered in the Spring Semester at SDSU.
- The data collection and analysis for the *First Year Research Project* (SDSU MSE 820 or UCSD MSED 298) should be conducted during the summer following the first year. Students enroll in this course during the fall semester of the second year to complete the report.
- One teaching practicum is required and is typically taken either spring of the second year or fall of the third year.
- Students should consult the Professional Skills Landscape (pp. 33-35) and the Equity and Diversity Section (pp. 29-33) to find activities and courses that round out their experiences.



Sample Course of Study for an MSED Math Education Student

Year 1

	Fall	Winter	Spring
UCSD	Cognitive science or tailored experience, 4 cr	EDS 254, Quantitative Methods, 4 cr	Cognitive science or tailored experience, 4 cr

	Fall		Spring
SAN DIEGO STATE	MthEd 603: Learning Theories, 3 cr		MSE 810: Qualitative Research Methods, 3 cr
	MthEd 60x (depending on what is offered – Mthed 600, 601, 604, 605, 606, 607, or 608), 3 cr		A second MthEd 60x class, 3 cr
	MSE 801, Faculty interviews (Check with SDSU Co-Director– may need to complete in Fall but register in Spring), 1 cr		MSE 802, Research Rotation, 1 cr
			MSE 802, Research Rotation on Grant-Writing Process, 1 cr

Year 2

	Fall		Spring
SAN DIEGO STATE	First Year Project: Either MSE 820 at SDSU (3 cr) or MSED 298 at UCSD (4 cr)		Teaching Practicum, 3 cr
UCSD	**Fall**	**Winter**	**Spring**
	MSED 296A, Doctoral Seminar, 4 cr	MSED 296B, Doctoral Seminar, 4 cr	MSED 296C, Doctoral Seminar, 4 cr
	EDS 255: Advanced Quantitative Analysis, 4 cr	Cognitive science or tailored experience, 4 cr	Cognitive science or tailored experience, 4 cr

Year 3: MSE 830, 3 cr, one semester at SDSU and Dissertation Research (MSE 897, 899 or MSED 299 as appropriate)

Year 4: Dissertation Research (MSE 897, 899 or MSED 299 as appropriate)

C. Registration

Each student is responsible for completing their registration in a timely manner throughout the program. Late fees are costly and avoidable. Registration information, including any non-MSE course schedule number, is available on-line. SDSU MSE courses have restricted schedule codes that are available from Deb Escamilla. To sign up for UCSD classes utilize the TritonLink portal.

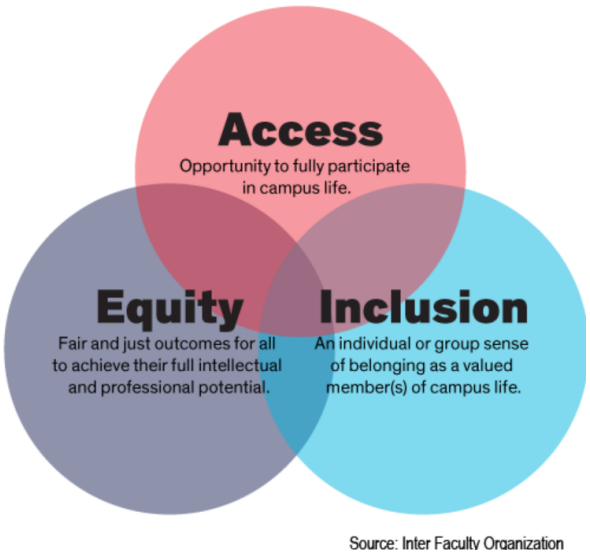
Be sure to check your auto-issued UCSD email as that campus uses only that address for all correspondence. For further UCSD course information, contact the UCSD Graduate Advisor.

All students are required to register for 6 units every semester they are enrolled at SDSU (summer graduation is the exception) and at least 1 unit at UCSD (which can be MSED 299), to maintain active enrollment on that campus. Graduate students living in UCSD housing, holding various appointments, or receiving financial support must enroll and register as full-time students each term. Full-time is defined as 12 units per quarter at UCSD and 9 units per semester at SDSU. Basically, students need to have three classes on either or both campuses combined to be considered full-time.

Summer graduation requires a few extra steps. Go on to WebPortal and cancel spring grad. Then apply for summer grad. Then (as there is no bill) via CASHnet, pay tuition and fees (just like Amazon shopping) for 1 unit of 899, keeping proof of payment for possible reimbursement.

Equity and Diversity at MSED and in Educational Research

This section addresses two manifestations of equity, diversity, and inclusion: (a) the overall commitment of MSED to be an inclusive and equitable program (b) the education of future mathematics and science education researchers to understand and take a stance with respect to equity and diversity in their research.



Source: Inter Faculty Organization

MSED as an Equitable Program

Diversity and inclusion are necessary conditions for productive learning environments. MSED embraces the principles stated in the pledge below and encourages all MSED faculty, students and staff to take the pledge as individuals.

I pledge…

- To embrace the diversity of all individuals respecting such attributes as their sex, gender, race, ethnicity, age, class, citizenship, marital status, sexual orientation, nationality, socioeconomic status, religion, physical ability, mental ability and expression.
- To strive toward social justice for all people in order to create and sustain a safer, more productive, and inclusive campus environment.

- To refrain from using derogatory terms or statements that are harmful and disrespectful to others.
- To not contribute to stereotypes or make generalizations about individuals but rather to use my own experiences and interactions to better understand and embrace all people.
- To educate myself about cultures other than my own.
- To engage in and contribute to the diverse world around me.
- To actively honor this pledge within my everyday life.

Equity and Diversity in STEM Education Research

Over the past decade, there has been an increase in the amount and visibility of equity-related research in the fields of mathematics and science education. According to the NCTM Research Committee, "the field's knowledge base related to equity-based research has deepened, with research handbook chapters, books, journal issues and articles, and research centers devoted to understanding and improving the mathematical experiences of students historically marginalized in STEM education" (Aguirre et al., 2017, p. 125). Multiple national policy documents guiding K-16 mathematics and science curriculum and instruction (American Chemical Society Statement on Diversity and Inclusion, 2017; Mathematical Association of America Instructional Practices Guide, 2018; National Council of Teachers of Mathematics Position Statement on Access and Equity in Mathematics; National Research Council, 2012; Next Generation Science Standards, 2013) call for an emphasis on: (a) ensuring that all students have access to participation in high-quality, rigorous math and science experiences; (b) being aware of how implicit biases based on ethnicity, race, socio-economic status, gender identity, or other social identities can negatively affect students' instructional experiences; (c) valuing and being responsive to diversity in students' background, cultural perspectives, and traditions; and (d) achieving parity in educational opportunities and achievement. The MSED program faculty believe in the value of conducting research in issues related to access, equity, and diversity in mathematics and science education. Consequently, there are multiple MSED faculty, at both universities, who have made equity and diversity an explicit part of their research programs. These faculty can supervise research rotations, first year projects, and dissertations on these topics. Their names and equity-related research interests follow:

- **Alexander (Sasha) Chizhik**: Equity in group interactions
- **Sherice Clarke:** Investigations of the ways in which "access" is structured at the micro-level, in science discussions
- **Alan Daly:** Promoting equitable educational outcomes for high-risk college students
- **Amanda Datnow:** Issues of equity in K-12 educational reform and policy
- **Susan Nickerson:** Women role models in calculus
- **Daniel Reinholz:** STEM education transformation with the aim of increasing equity and diversity in STEM fields
- **Dustin Thoman:** Stereotype threat as a contextual barrier to women's science career choice intentions
- **Stanley Lo:** Identity navigation in STEM
- **J. Luke Wood:** Factors affecting success in education of boys and men of color

- **Bill Zahner:** Equity approaches in teaching and teacher education for emergent bilingual students

- **Thandeka Chapman:** Examines the ways in which institutional racism is manifested in school climate, curriculum, adult and student relationships, and school policies

An important theme of the UCSD Education Studies Department is its commitment to promoting equity and social justice. Thus, there are a number of courses that allow students (including MSED students) to become knowledgeable about equity and diversity in education. In particular, their Ph.D. program, *Transforming Education in a Diverse Society,* focuses on equity, equality, and justice in educational settings. A number of new graduate courses have been developed for this program and more are on the way. Both undergraduate and graduate courses related to equity and diversity are described below. These courses can fulfill the Tailored Experiences requirement of the MSED program (fitting in the Philosophy & History, Sociology, or Other categories).

EDS 113: Chicanas/os and Latinos in Education: Policy, Practice, and Challenges to Equity. An overview of the experiences, challenges, and opportunities for educating Chicano/Latino students. This course unpacks the socioeconomic and systematic factors that underlie these data. Further, to understand this persistent phenomenon and explore approaches to altering the current pathway of this group, this course will provide a comprehensive overview of Chicana/o-Latina/o students at every stage in the P-20 education continuum. Taught in Winter.

EDS 117. Language, Culture, and Education (cross-listed as SOCI 117). The mutual influence of language, culture, and education will be explored; explanations of students' school successes and failures that employ linguistic and cultural variables will be considered; bilingualism and cultural transmission through education. Taught every quarter.

EDS 125. History, Politics, and Theory of Bilingual Education. This course provides a historical overview and models of bilingual education in the United States. Students will examine socio-cultural, theoretical, and policy issues associated with native language and second-language instruction, and legal requirements for public bilingual program. Taught every quarter.

EDS 251: Transforming Learning Environments. This course explores formal and informal learning environments with documented records of successful student engagement. Using an array of curriculum and learning theories, students investigate new and traditional pedagogical practices, curricula, and learning environments for elements of transformative practices. Students critique current literature on teaching for change as it applies to the contexts they chose to study and identify new possibilities for teaching and learning in diverse student contexts. . Prerequisites: students must be registered EDS graduate students; MSED students need to seek permission to enroll from the instructor. Offered annually Winter quarter.

EDS 252: Transforming Inequities in Student Outcomes. The course focuses on factors that shape the unequal distribution of educational opportunities for marginalized groups. Students will interrogate societal and school structures, and underlying socio-cultural processes that

impact engagement and outcomes for marginalized groups or students. Students will explore theories on student success and failure, family and community connections, and identity formation in relation to transforming outcomes. Prerequisites: students must be registered EDS graduate students; MSED students need to seek permission to enroll from the instructor. Offered annually Fall quarter.

EDS 253. Transforming Educational Systems and Policy. This course exposes students to past and present systemic policies that influence the practices and efficiency of the P–20 system. Students will explore the barriers and facilitators of successful policy interventions at the local, state, and federal levels of education policy. Attention is given to each segment of the educational continuum, exposing students to strategies for transforming the educational system to ensure equitable opportunities to learn and achieve. . Prerequisites: students must be registered EDS graduate students; MSED students need to seek permission to enroll from the instructor. Offered annually Spring quarter.

EDS 268: Introduction to Critical Race Theory and Education. Introduction to critical race theory (CRT) and education provides a foundation for students who are interested in learning more about critical race theory in education. Students will read seminal and new scholarship in CRT. Students will gain a solid breadth of knowledge from the field of CRT and identify possible applications and opportunities for future research in education. Prerequisites: EDS 251 or EDS 252 or EDS 253. ED82 major or consent of instructor. Offered Fall 2019.

EDS 278/COGR 278: Talking Culture, Culture Talking: Voices of Diversity. This course explores the discourse of culture in American society and the problem of "silenced" or unheard voices. The interaction of individual and collective voice, language, and identity are discussed as they bear on the ways that culture moves through important social institutions such as schools. Of particular interest are issues of teaching, learning, displacement, inclusion, marginality, and the "speaking center." Prerequisites: graduate status or consent of instructor.

EDS 297: Directed Group Study. Prerequisites: students must be registered EDS graduate students; MSED students need to seek permission to enroll from the instructor. The following will be offered in 2019-2020:

- **Learning Sciences: Designing for Educational Equity**, Sherice Clark, Winter 2021
- **Language, Race & Education,** Aragon, Spring 2021
- **Critical Social Theories,** Makeba Jones, Spring 2021

At SDSU, MthEd 608, Equity in STEM Education, will be offered every other year in the spring, beginning with Spring 2022. Daniel Reinholz and Bill Zahner alternate years teaching the course. Both had developed and taught courses with an equity focus, offered as seminars in the past (Math 720).

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Professional Skills Landscape

The following is an essential tool to assist MSED students in making a plan for developing the skills of a mathematics or science education researcher. This is not a checklist of requirements. Rather it identifies experiences that can help students develop important professional skills, with a focus on activities that go beyond the core course requirements. This tool can also help students communicate with advisors and mentors regarding evolving goals. If an opportunity to develop one or more of these skills has not yet arisen, students may wish to discuss with an advisor, supervisor, or program director ways to make them happen. Finally, the process of discussing these skills with mentors can help students develop a professional narrative.

1. Research Capacity

Skills	Experiences that can Support Skill Development
• Scientific publishing processes • Analytic skills/data analysis and interpretation • Responsible conduct of research	• Publish a co-authored article with a faculty member • Complete CITI human subjects research training • Complete a research ethics course or the CITI research ethics training • Assist in the data collection process as part of a research team • Help analyze data as part of a research team • Take part in developing Institutional Review Board (IRB) documentation as part of a research team • Create a research statement for your job packet

2. Processes for Obtaining External Funding

Skills	Experiences that can Support Skill Development
• Grant writing process • Learning about different funding agencies • Finding local funding sources and applying	• Be involved with a faculty member/research team that is submitting a grant proposal • Read examples of funded and unfunded proposals • Apply for travel awards at SDSU or UCSD • Apply for Sowder Research Award, Nicholas Branca Memorial Scholarship (http://www.nicholasabrancafoundation.org/about/), and/or Spencer Dissertation Fellowship https://naeducation.org/naedspencer-dissertation-fellowship-program/

3. Communication Skills

Skills	Experiences that can Support Skill Development
• Writing/presenting for a lay audience • Writing/presenting for a research audience • Multi-media communication and digital tools • Ability to give and receive constructive feedback	• Present your work or the work of a research team at a conference • Create a conference poster • Attend a practitioners conference (like Greater San Diego Math Council or California Science Teachers' Association) • Prepare and give PowerPoint presentations • Attend practice proposal and dissertation talks and giving feedback • Present work at the SDSU Student Research Symposium

4. Leadership and Service

Skills	Experiences that can Support Skill Development
• Organizational skills • Contributing to a professional community	• Help organize a workshop • Be on the graduate student committee for a faculty search • Serve as the CRMSE student representative • Review for a refereed journal or conference • Volunteer at a local school

5. Instructional Processes

Skills	Experiences that can Support Skill Development
• Developing a syllabus with clear learning outcomes and expectations for inclusive classroom environment • Creating a class lesson plan	• Create a diversity statement for your job packet (http://facultyexcellence.ucsd.edu/c2d/) • Create a teaching statement for your job packet • Observe and/or co-teach a course/class session with a faculty member

● Being able to talk about issues of equity and diversity ● Enacting inquiry-based, equitable pedagogy ● Learning how to work well with teachers ● Understanding, unpacking, and noticing exemplary teaching practices	● Visit and work with exemplary K-12 teachers' classrooms

Sexual Violence Prevention and Awareness Training

All new SDSU graduate students beginning in Fall 2014 are required to view a 30-minute presentation on Sexual Violence Prevention and Awareness in Canvas. All new students will be directly notified of the video and the requirement via email and their participation will be tracked by the campus Title IX coordinator.

Residency, Time Limits, and Leaves of Absence

A. Campus Residency Requirements

Students must complete a 36-unit residency at UCSD, of which a maximum of 12 units can be upper division undergraduate courses (100 level). Lower division undergraduate courses do not count toward residency. Students must also complete an 18-unit residency at SDSU. The residency requirements cannot be replaced by coursework taken at other universities.

B. California State Residency

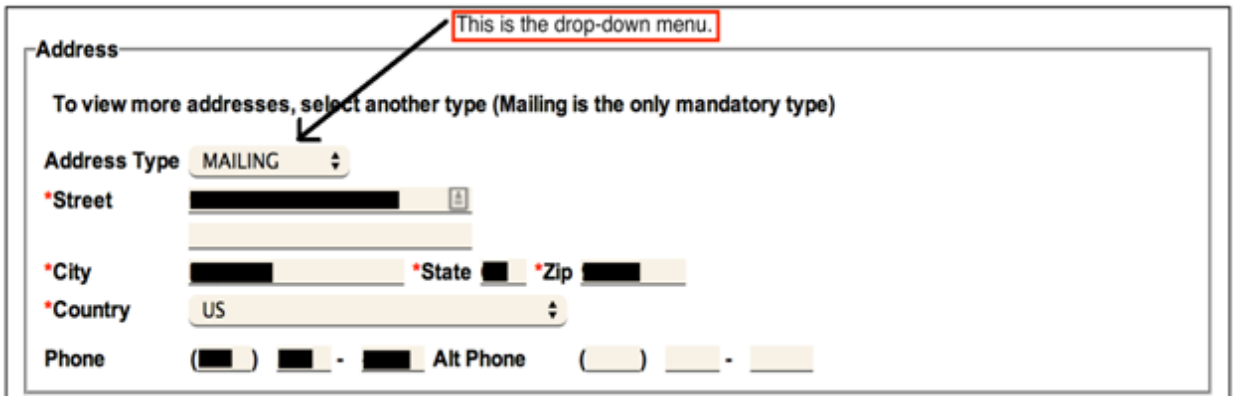
Out-of-state students must be reclassified as an in-state student after the first year. **As soon as possible upon arriving in San Diego** students should take as many of the actions found in the list below (prepared by an MSED student) as possible. Students should file for residency reclassification as soon as they have been in California for one year (and no later than Sept. 20). If not filed on time, non-resident tuition will be assessed, to be paid by the student.

California Residency Reclassification Guide
Prepared by C. David Walters (2014)

So you are hoping to establish California residency for tuition purposes? Below is a list of actions you should be taking as soon as possible to give yourself the best shot at having your application for residency reclassification accepted. As far as I can tell there is no minimum list of requirements that will satisfy the Registrar's office. However, I encourage you to take as many of the following actions as you can. From my own experience, failing to change your permanent address (as silly as that sounds) could result in a denial of your application. Part of the reclassification process is the timeliness of these actions. If you can do any of these within the first couple of weeks that you are here, that would be very good. You are supposed to be establishing residency one year before you apply for reclassification, and you'll be applying one year from the date you moved to CA.

1. **Change permanent address and mailing address**

   - Log in to SDSU webportal: https://sunspot.sdsu.edu/pls/webapp/web_menu.login/
   - Click Graduate tab
   - Click E-Mail & Address in the list
   - Click the drop down menu to select PERMANENT. Ignore the text that says "Mailing is the only mandatory type." This is a lie. Changing your permanent address is mandatory for residency purposes, I assure you. And it is pre-populated with whichever address you used to apply to SDSU, which means it is probably an out-of-state address. Not good.
   - Change your address. Click Update Account at the bottom of the page.
   - Repeat this process for MAILING address.



   Note that you only apply for residency through SDSU (not UCSD). However, now is also a good time to check to make sure UCSD has your correct mailing address. From this tool page (https://students.ucsd.edu/my-tritonlink/tools/) you can do that, sign up for direct deposit (you may have already done so), and you can later check your residency status, which SDSU should eventually communicate to UCSD, thought I suspect they are slow about it.

2. **Register car.** Be sure to register your car in the state of California as soon as you possibly can. The time period for establishing residency is one year from the application deadline, **which this year is September 20.** This means you need to register your car in California before that date of your first year to ensure that when you file for reclassification in your second year that your car has been registered for more than one year in the state.

3. **Driver's license.** Similarly, you need to have a valid California Driver's License or State ID. Make sure you do this at least one year before the application date for reclassification.

   How to Get a California Driver's License or State ID:
   - Make an appointment online to visit your local California Department of Motor Vehicles (DMV) office in person.
   - https://www.dmv.ca.gov/portal/
   - Complete a Driver License or Identification Card Application (Form DL 44).
   - Provide proof of your ID, SSN, birth date, and residency.
   - Pay the fee.

4. **Establish an account with a local credit union or bank**, or if your current bank is nationwide and includes branches in San Diego (e.g., Chase or Bank of America), then change your permanent address with them.

5. **Register to vote in CA.** You should register to vote in the state of California, and you should vote in any elections for which you are eligible. Save a copy of your voter registration form, as well as any voting stubs you get from voting in elections. Keep these as evidence of your voting rights within the state so that you can include them with your application.

6. **Seek tax counsel to determine the best method for filing your taxes in two states if you must file in your previous state of residence.** I cannot give you tax advice, but I can tell you that my wife and I had to file income taxes in two states the first year we were here, and this was a point of contention for the Registrar's office. We did not seek counsel, and I'm not sure if it would have helped, but if you feel that your tax situation could be a sticking point for residency reclassification you should seek professional tax counsel.

7. **Make copies of W2 forms that you file when you first begin earning income in CA**

8. **Make a copy of your mortgage/lease agreement for your place of residence**

9. **For more information see**
https://registrar.sdsu.edu/students/additional_resources_students/residency_information

10. **Read the California Residency Reclassification Request form** as soon as you move to CA so you can see what documentation you will need to provide in a year (https://registrar.sdsu.edu/_resources/pdf/csu-residence-questionnaire.pdf)

C. California Residency Reclassification Request

As soon as you have been in California for one year (and no later than Sept 20), follow the steps below to submit a request to be reclassified as a California resident:

1. Answer all of the questions on the Reclassification Request form found at https://registrar.sdsu.edu/_resources/pdf/csu-residence-questionnaire.pdf
2. Attach a photocopy of all supporting documents below to substantiate your California residency. Do not submit original documents as evidence.

    - CA Driver's License or CA Identification Card
    - CA Department of Motor Vehicle Registration, if you own a vehicle
    - Proof of voter registration
    - Bank or Credit card statements for the past 12 months (all pages, this item will be the bulk of the packet), make sure it is the account with a CA address and shows transactions in CA.
    - Federal/CA State taxes (photocopy of most recent Federal W-2 form(s) and most recent CA State Income Tax 540 form)

- Summer presence – if you are doing research/internship outside of CA, remember to get a letter from your department stating you are on an educational internship/research
- Document that indicates the beginning date of employment in California
- Housing/Rental agreement from the past year (including summer months)
- Proof of moving to CA
- Utilities for the past 12 months
- If applicable, copy of permanent resident card
- If applicable, active membership in CA professional or social organizations

3. Submit your Reclassification Request as soon as possible, before registration for the next semester. If you personally deliver your form, note that we cannot make copies of documents for you.

You can provide copies of official/legal documents via the Upload Admission Documents link in your SDSU Webportal account. Forms may still be accepted in person in the Office of the Registrar, Student Services West 1641.
The reclassification review process may take three to four weeks, depending upon the volume of requests received. Requests will be processed in the order they are received.

Because your tuition is paid to SDSU, SDSU handles all the residency paperwork and you do NOT have to apply at UCSD.

D. Time Limits

- Total registered time as an MSED student cannot exceed six (6) years. There were some exceptions granted because of covid. These will not be indefinitely extended.
- Students must advance to candidacy (i.e., successfully complete and defend their dissertation proposal) by the end of Spring Quarter at UCSD of their fourth year. Students may not register on either campus after four years unless they have first advanced to candidacy. The recent amendment to this policy is that there is now an internal departmental option to extend this deadline to the beginning of Fall quarter of that calendar year. The extension has to be granted by the MSED Steering Committee and supported by the dissertation chair. Extensions will be decided on a case-by-case basis. A written rationale needs to be provided for the delay (e.g., a data collection site unexpectedly withdrew), and clear evidence of the student's progress to date needs to be provided (i.e., a draft of the dissertation proposal that meets the program's standards). If such an extension is granted by the Steering Committee, very specific milestones must be identified and met.
- It is also *possible* to make a request to the UCSD Office of Graduate Studies (OGS) for one further extension, to the end of Fall quarter at UCSD, but only with a letter identifying a true emergency as the reason for the delay (e.g., two month hospitalization, lab rats dying, etc.). The letter would also need to identify concrete progress that has been made and list the milestones that will continue to be made. These requests are scrutinized carefully by OGS and

are only granted when dire and unavoidable extenuating circumstances are present. The dissertation chair and the MSED Steering Committee would also need to support the extension.

- Students who don't successfully meet these time limits won't be able to continue in the program.
- Normative time to degree in the MSED program is 4.5 years. Students are encouraged to finish in four-five years, if possible, and the faculty supports their efforts to do so.

E. Leave of Absence

Permission must be formally requested to obtain a leave of absence. This process should start with the student contacting a Program Co-Director. The total amount of time a student may be on leave is limited to 3 quarters at UCSD. For more details, see the UCSD OGS Academic Progress Policies & Procedures online handbook https://grad.ucsd.edu/academics/policies-procedures/index.html

Please note a leave of absence may affect a student loan repayment. When planning on returning from a Leave of Absence, a student must notify an MSED Co-Director of the quarter in which s/he intends to register. The Co-Director then notifies the Graduate Studies Office at each campus, who then reinstates the student. The student cannot register until this is done.

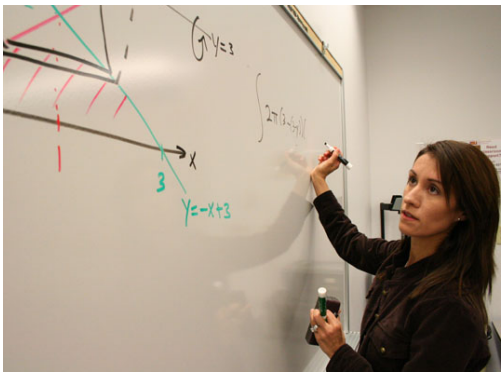
Research Assistantships, Teaching Assistantships & Other Work

A. Assistantships

Upon entrance into the program, each student is provided a research assistantship or a teaching assistantship.

Research assistants are assigned to work with on-going research projects. A student should expect to spend about 16 hours per week on average, 11 months per year working with the assigned project. Students are allowed to take 1 month of non-work time. For example, a student may take 1 week of vacation at Christmas, 1 week for a serious illness, 1 week during the Second Year Exam, and 1 week of vacation in the summer. Planned absences need to be **negotiated** with the supervisor of the assistantship. Students should not decide the specific dates (e.g., for vacation) before talking to the supervisor and taking into consideration any special needs or deadlines of the project.

The stipend for these assistantships is paid in 12 monthly installments – checks are received either once or twice a month, depending on the university and origin of the funds used to fund the research assistantship. Each RAship begins Sept 1 and ends August 31 of the following year. UGFs or other Fellowships may have alternate start dates.



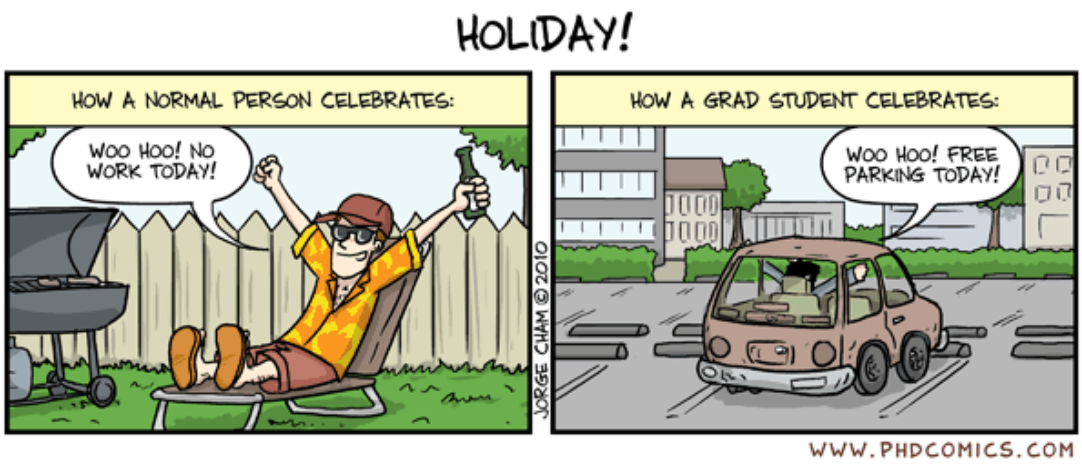
Teaching assistants typically teach 1 course per semester in the Department of Mathematics and Statistics at SDSU or serve as a calculus TA (running recitation sessions) at UCSD. There may also be future opportunities for TAships at UCSD in chemistry and biology. TAs can earn teaching practicum credit for this teaching (MSED 805 at SDSU; Math 500 at UCSD). For TAs at SDSU, Susan Nickerson and Mary Pilgrim, MSED faculty members in the SDSU Department of Mathematics and Statistics, provide supervision which includes, sharing pedagogical tips, resources of quizzes, tests and activities, and visiting the MSED students' classrooms. During the summer, TAs are assigned to a research project as a research assistant.

Please note that unless you are able to work something out with State Payroll (there is a student FICA exemption), the two summer checks for SDSU TAs will reflect higher FICA withdrawals (people have reported $120/month). Also, if you are paid for either a TA or RAship with California state funds, from Semester 3 on you are automatically enrolled as a CalPERS member, and 13.65% will be withdrawn for retirement and other benefits. You will receive a letter. If this occurs, contact Deb Escamilla and the SDSU MSED Co-Director, who will locate supplementary funding so that you are not paid less than other students.

Project Placements are made by the Steering Committee, with input from the students and from the faculty and by considering the fit between the skills and background of the student and the needs of the project. Assignments can vary from year to year. For example, during the first year a student may have a research assistantship associated with a funded project at SDSU but change to a teaching assistantship at UCSD the second year. Support for the year is identified and allocated each spring. This is a complex task, and once assignments are made, the student is considered to have a contract with the program for the upcoming year.

Stipends. MSED has successfully maintained equitable funding by providing the same level of stipend support for each student in the program. The stipend is $25,387 for 2022-23, and stipends will increase 2.5% annually. We have succeeded in fulfilling our pledge to students to provide funding for four years in the doctoral program. Students drawing paychecks from the State of California (e.g., a TA in the Dept of Mathematics and Statistics) or on the SDSU Foundation payroll (e.g., an RA on a CRMSE project) will be asked to sign up for direct deposit.

Vacations. Since SDSU is on a semester system and UCSD is on a quarter system, there is variation with beginning and ending dates. Neither SDSU nor UCSD allow unexcused absences from graduate classes so it is important to stay aware of the schedules of each university. Research assistantships provide year-long support, and students are expected to work on projects 11 months each year. Vacation time should be pre-arranged with the research supervisor.



***footnote**: Thanks to Doug from UCSD (and several other people) for sending this comic idea!*

B. Outside Employment

The level of rigorous training offered by the MSED program demands year-round, full-time commitment from students. Additionally, it requires participation: (a) in the student and faculty community in San Diego, (b) research apprenticeship experiences that typically involve data collection in the San Diego area, and (c) the learning of fundamental research skills through research assistantships on externally-funded research projects that require engagement with a team in San Diego. These experiences exclude the possibility of working outside of the teaching or research assistantships that students hold during the program. Exceptions to this policy may be granted on a case-by-case basis, if the student has successfully defended his/her dissertation proposal, is working well with the dissertation chair or co-chairs, and has received university approval of a dissertation committee. [This is currently being revisited.]

However, students are allowed to earn money on another project for a short time (e.g., being involved in running teacher workshops for a month during the summer), if the Steering Committee feels that there is intellectual benefit and if the student in is good standing, both academically and with his/her RA or TAship. The rationale is that a student is obligated for 11 months on an RAship or TAship, and if a student is willing to forgo vacation and work the last month, that is acceptable. The Directors will distribute a list of possible opportunities for employment on university projects of which we are aware. If another opportunity arises or if you need assistance locating a valuable project, **contact the SDSU MSED Co-Director.**

Tuition, Fees, and Financial Aid

A. Registration ("Tuition") and Fees

State budget allowing, all MSED students in good academic standing, who have not exceeded 5 years in the program, and who are employed 50% time as a research assistant or a teaching assistant receive a waiver for regular registration costs ("tuition"), through the SDSU Graduate Division. Then, through a reciprocal fee arrangement with UCSD, joint doctoral students are also allowed to take courses at UCSD, without additional cost. If a student enters a 6th year, he or she is responsible for paying his or her own tuition.

Mandatory campus fees at SDSU are distinct from tuition and cover such nonacademic fees as student union, health services, and library services. The current rate is $1216per semester (2022-23). Each year of Years 1-5 in a student's program, either the grant supporting an RA or MSED will pay for one semester of mandatory campus fees. MSED has agreed to pay the other semester. The exception to this may be a student who is getting a fellowship that exceeds the other students. Students in Year 6 are responsible for these fees for both semesters.

B. Financial Aid

Some students will need further financial assistance. Financial aid is available through the Financial Aid Office at SDSU. It is recommended that the application process be started as early as possible. Although the personnel in this office try to be helpful, the combination of the federal, state, and university bureaucracies appear to triple the rules and regulations. Students' previous year's tax returns may be needed to verify income and eligibility. Some loans have the interest deferred with repayment beginning at the completion of a student's program. All financial aid requests must go through the SDSU Financial Aid office, even while in residency at UCSD. For additional information, contact the SDSU Financial Aid Office https://sacd.sdsu.edu/financial-aid.

Another source for financial assistance is the California State University (CSU) Chancellor's Doctoral Incentive Program (CDIP). This program provides student loans to a limited number of individuals pursuing full-time doctoral degrees at accredited universities throughout the United States. After participants receive their doctoral degrees and obtain a qualifying instructional position in the CSU, a portion of their loan from this program will be forgiven every year. Loans of up to $10,000 per year are available up to a total of $30,000. The application form has two parts: one to be completed by the graduate student applicant, and the other by a CSU faculty advisor. So it's important to start the process early and locate a faculty member who is willing to participate. For details, see http://www.calstate.edu/hr/cdip/

Scholarships, Fellowships, and Awards that MSED Students have Applied for

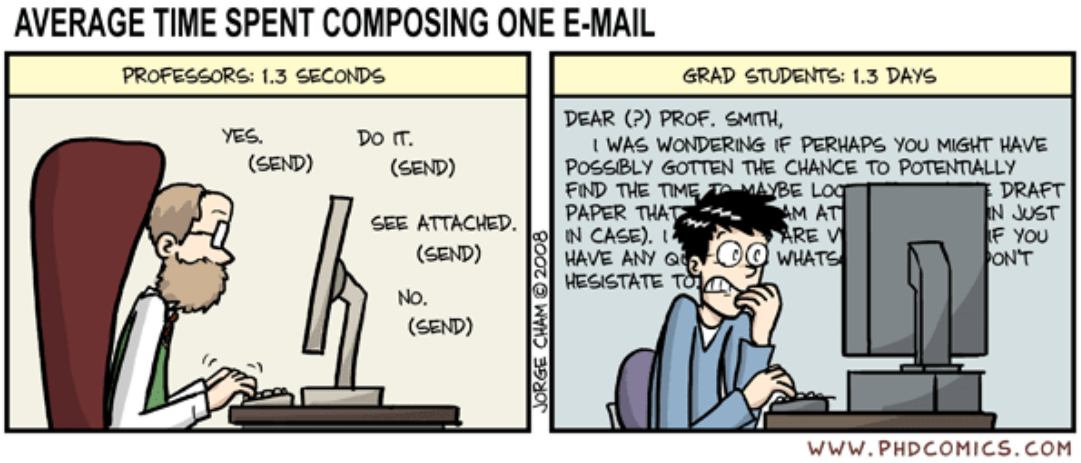
What	Who	When & How
Sowder Research Award $1000 to support MSED students' research program and professional growth. The award may be used for activities such as a research presentation at a national conference, software or hardware to support progress on the dissertation, stipends for interview participants, and other research activities that contribute to the applicant's professional growth.	Our intention is for each MSED student to receive 1 award during their time in the program	Get application from Deb Escamilla Applications due Oct. 15 and Feb. 15
Nicholas Branca Memorial Scholarship Every year, two $3,000 scholarships (or more $1500 scholarships) are awarded to honor Dr. Branca's memory and work in mathematics education. Typically one is awarded to a local teacher and the other $3000 is awarded to 1–2 MSED students. The SDSU Co-Director coordinates submission.	Mathematics education MSED students with an interest in teacher preparation, teacher professional development or research on teachers or teaching	http://www.nicholasabrancafoundation.org/about/ Applications are due June 1 but this could be a little later. Check with the SDSU MSED Co-Director rather than applying directly.
Achievement Rewards for College Scientists (ARCS) Foundation Award The ARCS foundation is a national women's organization that provides $7500 scholarships to graduate and undergraduate students in the natural sciences, medicine and engineering. The San Diego ARCS chapter provides scholarships to students from SDSU, UCSD, and USD.	Despite the focus on science and engineering programs, MSED students are eligible. Eligibility includes a GPA of 3.5 or higher, full-time status, US citizenship, and a nomination letter from an SDSU research faculty. It's helpful to be in Year 3 or higher in the program so you can discuss your research	https://sciences.sdsu.edu/scholars/arcs-scholars/ The deadline is typically in July.
NAEd/Spencer Dissertation Fellowship $27,500 to support a year of dissertation research. These fellowships support	Highly competitive program. Annually 30- 35 fellowships are awarded. The fellowship is intended to support the	https://naeducation.org/naedspencer-dissertation-fellowship-program/

individuals "whose dissertations show potential for bringing fresh and constructive perspectives to the history, theory, analysis, or practice of formal or informal education anywhere in the world."	analysis of data and writing of the dissertation (not data collection).	Deadline this year is October 6, 2022
Inamori Fellowship Ten SDSU graduate students are selected each year as Inamori Fellows and are awarded a $5,000 scholarship. Funds come from the Inamori Foundation, established by Kazuo Inamor, the chairman of Kyocera and KDDI Corporation.	Any degree-seeking SDSU graduate student whose advisor is an SDSU faculty member may compete. Applicants must have at least two semesters remaining in their program. Criteria include scholarly accomplishments and a letter from an SDSU faculty mentor	The application deadline for the program usually ends in October and awards are announced in early December.
CPM Dissertation Fellowship Award This is a one-year award of $30,000 to support dissertation research in mathematics education. The dissertation research should have some relationship to the Gr 6-12 CPM curricular materials (described at https://cpm.org/research-grants)	Candidates must have an approved dissertation proposal and be conducting research that examines "mathematics curriculum materials, teaching, and learning through an analysis that includes CPM curriculum materials, professional development, coaching, and/or classroom implementation"	https://cpm.org/research In past years, applications were due in January 2020 but it was halted for covid. Check the website.

Explore the list to see what might be relevant for you:
https://grad.sdsu.edu/funding/funding_opportunities

SDSU University Graduate Fellowship. In Summer 2017, the UGF program was launched by the SDSU, primarily for students in joint doctoral programs. Students cannot apply; programs and co-sponsoring faculty apply. An award is over two years, with one year being funded by the PI of an externally funded grant. During that year, the student earns the MSED stipend amount; during the state-supported year that stipend 23-24 will be $30K. Criteria have included GRE scores, GPA, scholarly accomplishment, and ability of the co-sponsoring project to decrease the project demands during the state-supported year so that the student can focus on dissertation research.

NSF Graduate Research Fellowship Program. The GRFP provides three years of support for the graduate education of individuals who have demonstrated their potential for significant research achievements in STEM or STEM education. Unfortunately, most MSED students are not eligible to apply because "Applicants who have completed more than twelve months of graduate study or have earned a previous graduate or professional degree are eligible only if they have had an interruption in graduate study of at least two consecutive years prior to November 1 of the year the application is submitted." If you took two years off after your Masters degree, you may be eligible. The deadline is Oct. 18 in 2022. A plan for a research study is required in the application. See https://www.nsfgrfp.org/



Evaluation

A. Annual Review

During May of the first and second years of study, a student's Graduate Advisors will complete the UCSD Annual Review (now online). Input may be solicited from instructors and RA/TAship supervisors. The form is signed online by the advisors, the student, and the Program Co-Directors. There is a space for student comments on the evaluation form, if desired.

In the rare event that the advisors recommend that a student not continue in the program, the Steering Committee shall review all records pertaining to the student and make its own recommendation. In the event that the Steering Committee recommendation concurs with the advisors' recommendation, all documents will be forwarded to the Graduate Deans on both campuses. The Deans will then consult with one another and decide on continuance.

B. Grades

Students must maintain a "B" average in the program. At UCSD, if a student's GPA drops below 3.0, the student is automatically placed on academic probation at UCSD. A student may not remain on academic probation for more than one year. At SDSU, if a student's GPA drops below 2.8, the student is automatically placed on academic probation at SDSU. The student has only one semester to get off academic probation. Furthermore, if the student has a research assistantship or teaching assistantship through SDSU, the student must maintain a GPA of 3.0 to continue to receive funding.

Students are responsible for keeping their Advisors informed about their grades, particularly any grades of B minus or below. Incompletes turn to F's after one year at SDSU, and after one quarter at UCSD. It is the student's responsibility to make certain there are no errors on their transcripts, which are available online.

Second Year Exam

A. Nature of the Exam

At the end of their second year, students take an examination that covers theoretical perspectives in mathematics and science education. The second-year examination has two main purposes. The first is to provide the student an opportunity to reflect on and consolidate their understanding of core theoretical ideas and interrogate their utility and limitations. A strong theoretical foundation is essential for subsequent progress in the dissertation and in the profession. The second purpose, which is related to the first, is to document that the student has made sufficient progress in their own epistemological and theoretical positions, such that additional foundational work or other reassessments are not required. The second-year exam is an opportunity to provide the student with comprehensive guidance before transitioning to the dissertation proposal.

This examination consists of two parts: (a) a written, take-home examination administered simultaneously to all second-year students, and (b) an oral examination during which the student will make a presentation on a research paper (or set of two shorter but closely related papers) selected by the student's examining committee, and then be questioned on the presentation and its relationship to issues of general cognition. The questions for the written examination will draw upon a common reading list given to all students in November of their second year. The article(s) for the oral examination will be taken from the student's area of specialization, either mathematics education or science education.

B. Scheduling

The written examination will be sent via email to all second-year students at 9 am on the first Wednesday following July 4th (which is July 5 for the 2023 SYE). Students will send their responses to the administrator (typically the SDSU MSED Co-Director) no later than 5 pm on Sunday of the same week (which is July 9 for the 2023 exam). Students may take the oral portion of the exam as early as 10 days after the conclusion of the written exam and as late as the day before classes begin for the Fall Semester at SDSU.

C. Committee

In the spring of the student's second year, the student, with input from one of the MSED Co-Directors, is responsible for initially contacting members who could serve on the student's second year exam committee. The student is responsible for asking one of these potential members if he or she is willing to serve as the chair of the committee. The student will then submit the names to one of the Co-Directors who will, in turn, submit the proposed list to the Steering Committee, who must approve the committee members and chair.

The committee of three (or four) MSED faculty members will include one faculty member from each campus and one member outside the student's area of specialization (meaning mathematics education or science education). The chair of the committee will be from the student's area of

specialization. If the student wishes to have a non-MSED faculty member on the committee, s/he should contact an MSED Co-Director prior to contacting the non-MSED faculty member. It is recommended (but not required) that one committee member have expertise in cognitive science, psychology, sociology, educational psychology, history of science or philosophy. Once the proposed committee membership has been submitted, the Steering Committee may stipulate that a fourth member is needed.

The student will be responsible for arranging the meeting time and venue. The chair will be responsible for selecting oral examination articles and for ensuring that the student receives them.

D. The Written Exam

The written examination will draw from a carefully assembled group of articles called the Second Year Reading List, and will give students the opportunity to exhibit their knowledge of theoretical perspectives on knowing, learning, identity, and power in mathematics and science education. It consists of three questions. MSED faculty members create draft questions and forward them to the Steering Committee for comments. A final version of the questions is approved by the Steering Committee.

For the past several years, the SDSU MSED Co-Director has served as the test administrator. The test administrator will release the exam at 9:00 a.m. of the exam date by email to all examinees. All written responses must be sent via email to the test administrator by 5 pm at the end of the 5th day. The test administrator will send the student's written responses to the student's committee members, along with copies of the student's first and second year evaluations (see Evaluation section below).

> Students are expected to consult no one but the test administrator during the written examination. All university plagiarism policies will be enforced.

When the written exam is emailed to students, the following set of guidelines is also sent:

1. Your goal is to write high quality essays, in terms of both substance and writing style. The essays should demonstrate your understanding of a variety of theoretical perspectives on learning and cognition, as well as central issues in mathematics and science education research.
2. While you should focus on the second-year exam reading list, it is appropriate for you to draw upon additional resources, such as readings from MSED courses, other scholarly papers, and your teaching and learning experiences.
3. The essay questions are designed to align with the reading list. However, this does not mean that you have to mention *every* paper on the reading list that might have bearing on the question. Support your argument by citing papers appropriately.
4. You may contact the administrator of the exam to clarify questions. However, you may *not* consult with anyone else during the written examination.

5. If the question asks for an opinion, then give it. Insert yourself into the essay. You will be judged on the strength of your argument, not on whether the graders agree with you.

6. There are *no* restrictions on length. We expect roughly 7-10 double-spaced pages including references (e.g., a 12-page essay is fine). It's important to pace yourself and decide in advance which subset of ideas you think you can tackle well in the time available.

7. *Formatting instructions*. Type your response on a computer using Microsoft Word, following these guidelines:

    - Each response is contained within a unique file, named as LastName.QuestionNumber (e.g., Foster.Q1).
    - Each file has a header with your name on the left margin, and question number and page number on the right margin (so that this information appears on every page).
    - Each file begins with a statement of the question to which the response is given.
    - Responses will be in 12 pt TimesNewRoman, double-spaced, with 1 inch margins all around.
    - Use clear headings (in APA style) to label each section of your essay.

E. The Oral Exam

The student is responsible for contacting the members of his or her committee to identify a date, time, and place for the oral examination. The student should notify the written test administrator once all committee members have agreed upon the time and place.

The committee chair will select and propose one major paper or two shorter related papers in the student's area of specialization (meaning math education or science education) to the rest of the student's committee for their approval. This process will include adequate time for the committee to review the paper or papers and discuss any issues or concerns. The student will receive the paper or papers on July 1.

Each student should read not only the paper (or set of papers), but relevant references and other work in the area, particularly by the author, that provide background for the paper(s). Setting the paper within a general framework is helpful in understanding it. Students are encouraged to practice their oral presentations by arranging a seminar to which other students are invited. This seminar is the only consultation the student may have with other persons about the oral

examination paper(s) between receiving the paper(s) and the oral examination. The student's committee members will conduct the oral exam. Members of the graduate faculty may attend as observers, but students are not allowed to attend. The student will be allowed 30-35 minutes to present the research paper or papers to the committee. The student will be expected to (but not restricted to) demonstrate how the research fits into a general framework of studies within the research area; give an overview of the research, including the purpose, methods, and results; and present the strengths and limitations of the research. A period for questions and discussion lasting 30 minutes will follow the presentation.

Two hours are needed for the oral exam, which is typically organized as follows:

- Welcome by Chair and reminder to committee of the agenda (5 min)
- Student presents the research paper or papers to the committee, typically using a PowerPoint presentation, lasting 30-35 min.
- The committee discusses the paper and asks questions (about 30 minutes)
- Student leaves the room(or Zoom room). Chair leads a discussion of assessment of the oral exam and the written exam. Since each is graded separately, these need to be separate discussions.
- Student returns and chair summarizes what the committee felt were the strengths and weaknesses of each section of the exam, as well as relays the final evaluation by the committee.

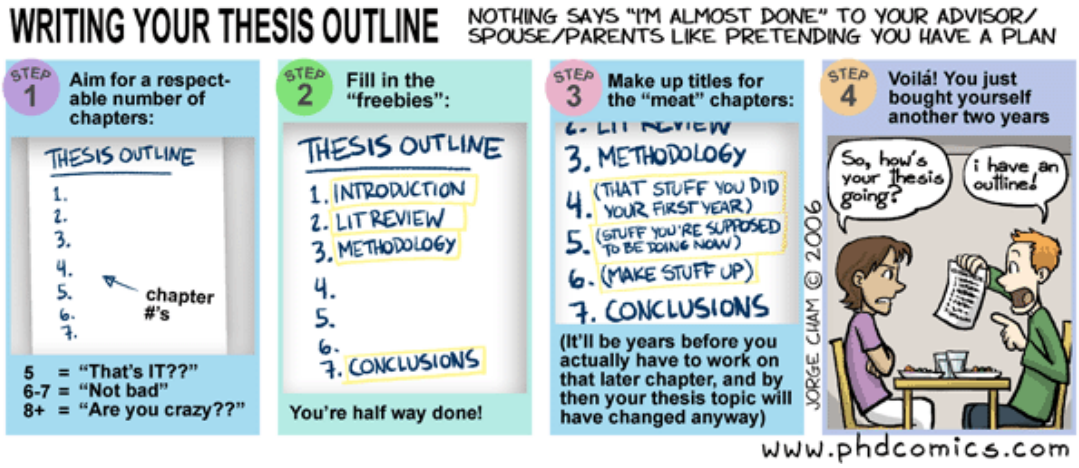
Students have typically brought light snacks to the oral exam. This was done to acknowledge that faculty are donating their time to your work and to help you by providing feedback. It is not our intention for you to spend lots of time preparing food or to take on great expense. You can arrange with Deb for MSED to pay for the snacks and perhaps ask other students to assist in bringing the snacks. The refreshments can be as simple as bottled water and snack bars. It's also important to remember the social aspects of writing a dissertation. The oral exam gives you an opportunity to allow what will likely be a subset of your dissertation committee to cohere around you and issues of interest to you. Being thoughtful about the needs of your committee members is one small element in that process.

F. Evaluation

At the conclusion of the oral examination, the student will be asked to leave the room while the committee evaluates the student's performance on the oral presentation and on the written examination. Evaluation criteria for both parts include the student's ability to understand, analyze, and evaluate literature in the field, to synthesize and apply knowledge gained in coursework and assigned readings, and to organize and present research information in a logical and coherent fashion.

The student will be given a pass, a conditional pass, or a failure in each of the two parts of the exam on the Second-Year Examination form (see Appendix). A conditional pass on either exam will be accompanied by a relevant assignment, generated by the committee and designed to address the weaknesses apparent in the exam. Upon completion of the assignment, the committee will make a decision to pass or fail the student.

If the student fails an examination, then the committee will make a recommendation regarding whether the student should be allowed to retake the exam or be discontinued from the program. The committee members' recommendation will be informed by the student's performance on the exam, the student's general performance in the program, and the first and second year evaluations. The Program Co-Directors, in consultation with the Steering Committee and the student's Graduate Advisors will decide whether the student will be allowed to retake the exam or whether the student will be discontinued from the program. If a re-examination is permitted, then the exam must be retaken and passed within six months from the date of the original oral exam. A re-examination of the written test involves three new questions over the original second year reading list. A re-examination of the oral test involves the presentation of a new paper or set of two related papers. A student who fails either the written exam or the oral exam twice will be discontinued from the program.



Qualifying Exam: The Dissertation Proposal

A. Doctoral Advisor and Dissertation Committee

After successfully completing the Second-Year Examinations, the student will select a Doctoral Advisor (Chair) who consents to serve in this position and replaces the Graduate Advisors. The student and Doctoral Advisor then work together to select a dissertation committee. A dissertation committee consists of at least five faculty members, including two from each campus. The "fifth tenured outside member" must be tenured at UCSD and is "outside" the content area of the chair's department. It is the case that 3, 4 or all 5 of the members may be MSED faculty. Each doctoral committee *should* (but is not required to) include faculty from mathematics or mathematics education, science or science education, and cognitive science, psychology, another social science or philosophy. In order to have a member from another university serve, permission needs to be obtained from the Dean of Graduate Studies at UCSD, and this is typically as a sixth member. At this time the JDP2 form (see Appendix) is completed and submitted. The dissertation committee must be approved by the Office of Graduate Studies at UCSD and by the Graduate Division at SDSU before the student can conduct the dissertation proposal defense (qualifying exam).

B. The Qualifying Examination

The MSED Qualifying Exam consists of the defense and acceptance of a dissertation proposal. The proposal consists of the first three chapters of your dissertation. Chapter 1 necessitates your research study and presents your research questions. Chapter 2 is a literature review. Chapter 3 details the methods to be used to carry out your dissertation study. You are required to submit the dissertation proposal to your university-approved dissertation committee 2 weeks prior to your arranged proposal defense date. The proposal defense usually occurs during the third year. It must be successfully completed before the end of Spring Quarter of the fourth year (see the Time Limits section in this Handbook). During the defense, you make an oral presentation of the proposal, which typically takes the form of a PowerPoint presentation (sometimes with a handout of key information). The defense will start with a welcome from your Dissertation Chair, followed by your 35-40 minute presentation. The dissertation committee will ask you questions for approximately 30 minutes. You will then leave the room while the committee discusses your proposal. Upon successful completion of this presentation, the student is recommended for advancement to candidacy for the doctoral degree. The JDP3 form is required at this event and prompt routing of same by student, including payment of a UCSD fee, is necessary to avoid registration delays.

Dissertation

After completion of the dissertation, a candidate will present a public oral defense of the doctoral thesis. An electronic copy of the dissertation must be made available to the Administrative Assistants at both campuses, four weeks before the defense, for distribution upon request to the doctoral faculty at both institutions. At the same time, the student will ensure that all committee members have electronic or paper copies of the dissertation (depending on the committee member's preference). Copies of the abstract of the dissertation, along with the announcement of the defense, must be publicly available four weeks before the defense. [Students should provide the information to the SDSU Administrative Assistant for dissemination.] The student's Dissertation Committee will make a recommendation to the Graduate Deans to pass or to fail the student. The JDP5 form is required at this event as well as at the final clearance appointments on both campuses. Detailed information regarding the intricate logistics of the entire exit process can be found at the OGS sites http://grad.ucsd.edu/academics/preparing-to-graduate/index.html and http://grad.ucsd.edu/academics/preparing-to-graduate/dissertation-thesis-submission.html

Thoughts on Streamlining Dissertation Writing

(prepared by David Quarfoot)

- Some students wait to send their committee the completed dissertation containing all chapters. If, instead, you send each chapter as you write it, you can get immediate feedback, corrections, additions, deletions, omissions, etc. This increases the quality of your final work and decreases the number of changes that must be made after your public defense.

- When it comes time to format your document according to the UCSD style guidelines, you will want to use Heading Styles in Word. These take 10 minutes to learn about and allow for auto-generation of your Table of Contents, List of Figures, and List of Tables that are required

at the beginning of your dissertation. You can also use styles to format figure captions, table captions, and block quotes.

- If you have avoided using a citation management program during your coursework, you really should learn Zotero (or some similar tool) for your dissertation. Dissertations tend to include hundreds of references, and you are likely to cite these papers during your later career. If you write each chapter in a separate file and then merge them, you will want to make sure your citations are nearly perfect before the join.

Friendly Guide to Dissertation Administrativia

(Prepared by Spencer Bagley and David Quarfoot)

A. Overview

Writing a dissertation is hard work, and the dual bureaucracy of a joint doctoral program doesn't make it easier. There are like a hundred different forms and appointments and surveys and signatures and deadlines and registrations and so forth; this section is meant as a friendly guideline for helping you find all the things you need and all the information you need to use them properly. I've arranged the stuff in this document in roughly chronological order.
I'm making a few assumptions in this document about your timeline. The usual thing to do is to finish up in the spring or so. If you're finishing in the fall, then adapt as necessary.

B. Documents

Here is a list of documents you will eventually need, besides things that are found in the actual text of your dissertation (and thus you can print them off whenever). The rest of this guide will explain what each one is and how you get it.

- 2 certificates of completion of Survey of Earned Doctorates (one copy for UCSD Office of Graduate Studies and one for SDSU Graduate Affairs)
- 1 certificate of completion of in-house OGS survey
- 3 copies of the signed signature page, preferably two originals—one original for UCSD Office of Graduate Studies, one original for Montezuma Publishing (This one

doesn't *have* to be original, as long as it is a good photocopy, so don't worry if you don't have two originals), and one photocopy for SDSU Graduate Affairs
- 1 (mostly) signed JDP5 (see section on final appointment)
- 1 Degree and Diploma Application
- 1 Dissertation and Thesis Release Form

C. Deadlines

- Your document needs to be in the hands of your committee *four weeks* before your defense date. For instance, my defense was Monday, July 14, so my dissertation was due on Monday, June 16 (and not, in particular, on June 14).
- To get a spring degree, you have to defend your dissertation before the end of the spring term at UCSD. This means that you should be done writing *before mid-May.*
- It has been common practice to defend in June or July, but walk in the May commencement at SDSU (or June at UCSD if you wish), and get a summer degree. (This is what I did.)
- A note from Deb: "Summer graduation, although common, will by 2015 cost almost $1000 in extra tuition. Historically, this amount has been covered by MSED, but there's no guarantee that this practice can continue. If you can possibly defend in Spring (which means finishing writing before mid-May), by all means do so. Alternatively, be prepared to ante up some $$."
- When you schedule your defense, try to make this at least a week before your final formatting appointment (see section I).

D. SDSU stuff

You'll need to apply for graduation at SDSU, through the Webportal, *by the end of the second week of classes*. There is a one-time fee per degree of $100. Choose spring graduation if you'll defend before the end of UCSD's spring term, or summer graduation otherwise.

If you initially chose spring graduation but won't make it, no big deal – you'll need to cancel your spring graduation and reapply for summer graduation *by the first week of May*. But you do not need to pay the $100 again, because it is a one-time fee per degree. Also you will need to enroll in 1 unit of 899 in SDSU's summer term.

E. UCSD stuff

https://grad.ucsd.edu/academics/preparing-to-graduate/dissertation-thesis-submission.html
You need to make both a preliminary appointment and a final appointment with the Office of Graduate Studies (OGS). Schedule them online. The earlier you can get on the schedule, the better! They check to see that your dissertation is formatted according to the formatting manual. Note that you may not be able to make your final appointment until after your initial appointment has occurred. Also, you are only allowed to schedule appointments 60 days (or fewer) in advance.

F. Surveys

There are two surveys you need to complete: (a) the Survey of Earned Doctorates and (b) the in-house survey from UCSD Office of Graduate Studies (OGS). The OGS people will send you links to both of these surveys.

Survey of Earned Doctorates:

- This is an annual census, conducted by the U.S. since 1957, of all persons receiving a doctorate from an accredited U.S. institution in a given academic year. It'll take you like 20-30 minutes to complete. Do this one before your preliminary appointment.
- When you register, you'll get an email with a PIN and password. *Save this email.*
- At the end of the survey, you get a completion certificate. Print out *two* copies and save it as a PDF somewhere in case you lose one. SDSU and OGS both want a copy.
- If you do end up losing a copy, you can email them your PIN to have them send you a new one. This is why you should save your PIN.

OGS survey:

- Again, 20-30 minutes. OGS will send you a link after your preliminary appointment.
- Again, there's a certificate of completion at the end of the survey. You only need one copy of this one, but you should still save it as a PDF just for fun.

G. Preliminary appointment

I recommend you schedule this during the month between your due date and your defense. Do your best with the formatting for this appointment, but don't feel like it has to be perfect yet. They'll catch a few formatting errors that you'll need to fix before your final appointment. Upload a PDF of your entire dissertation to http://www.etdadmin.com the day before your appointment.

Things you need to bring: (confirm current requirements)

- A paper copy of everything before page 1.
- One certificate from completing the Survey of Earned Doctorates.
- Dissertation and Thesis Release Form. You are probably not embargoing your dissertation, so you probably do not need your chair's signature on this document. https://grad.ucsd.edu/_files/academics/DissertThesisReleaseTemplate.pdf

This meeting takes about 20-30 minutes. Sara Miceli will go through each page of the dissertation on the computer screen (~ 1 page/second) and look for formatting errors. The most common errors include: improper margins, not putting the page numbers for the start of chapters at the bottom, and not single-spacing block quotes (which must be indented from both sides).

H. Defense

- ***Effective November 18, 2020:** Committee member signatures are no longer collected on a signature page. Committee approval of the dissertation/thesis is now captured on a revised ***combined*** Final Report Form which contains an approval

section for the dissertation/thesis. Students should check with their department/program coordinator to verify that the revised form is being used.

- **SDSU Joint Doctoral students** need to continue following the process below:

  Students initiate the dissertation/thesis signature page through DocuSign. Committee member signatures will be collected electronically through DocuSign and the form will be routed electronically to the Graduate Division. (See page 12 in the formatting manual for detailed instructions.) Students use the JDP signature page link here.

I. Final appointment

This needs to be scheduled *after* your defense and *before* the Friday of finals week of the quarter you plan to graduate at UCSD (check with the Office of Graduate Studies to make sure of the exact date). Give yourself at least a week, in case you need to make some changes to your text. Submit your dissertation online the day before: http://www.etdadmin.com. This time all the formatting does need to be right. Check your email an hour before your appointment, because Sara Miceli has probably sent you an email with a few minor fixes. If you schedule your appointment around 11 AM, you will have time to make these changes before you go to your meeting, leaving you time to take care of things at SDSU later in the day.

Things you need at this point:

- JDP5 – There are lots of signature lines on this thing. Your JDP5 will be circulated after your final appointment to get those ones.
- Your certificate from completing the OGS survey.
- Three copies of your abstract and I think a copy of your title page.

Sara Miceli will sign your JDP5 for the UCSD dean. These directions have been shifting due to the pandemic and the shift to electronic signatures.

J. One more trip to SDSU

Follow UCSD's Dissertation Guidelines, then

- After publication at the UCSD campus, complete the SDSU Doctoral Dissertation Submission Form.
- Within five business days of submitting the form, Pat Walls in Graduate Studies will evaluate your packet and transcripts, and then send the dissertation and associated documents to Montezuma Publishing. Pat Walls will email you with confirmation.
- Respond to Montezuma's request to process payment for publication because of course you get to pay more. Montezuma Publishing will inform Graduate Studies once you have successfully published. Dissertation publication is a degree requirement and the dissertation is not "published" until final payment is made.
- At the end of the semester, your graduation will be coordinated by Pat Walls after a final evaluation. You will be mailed one diploma (requested by the partner campus), and be able to obtain official transcripts from both campuses. Official SDSU transcripts showing that the degree was awarded can take up to 6 weeks after the last day of the semester.

A summary with links here: Graduation and Dissertation Steps for Ph.D Students

K. Diploma

In 3-4 weeks you'll get a letter from the UCSD dean saying you've completed everything. You can give this to your new job to show them you're legit. (You won't get your actual diploma for several months.) You're done, yay! Congratulations and now you never have to do this again!

Other Dissertation Information

Scheduling a Dissertation Defense

Often students need to know the last day they can defend and still finish within a quarter. The deadline for filing a dissertation is ON THE FRIDAY BEFORE THE LAST DAY OF FALL AND WINTER QUARTERS, AND ONE WEEK EARLIER FOR SPRING QUARTER, also to have your name printed in the UCSD commencement booklet. Students seeking to meet this deadline must have a preliminary appointment for a formatting check prior to their final appointment and submission of the dissertation. The deadline to file for a summer degree is usually the first Friday in September.

Defending a Dissertation in Summer

If you need to defend your dissertation in the summer, follow these instructions:

- Cancel spring graduation if necessary and reapply for summer graduation.
- Ask Deb if a fee authorization from MSED can be used.
- If a fee authorization will not be utilized, UCSD will issue a reimbursement check, but you must go through the payment process, which is not intuitive. Go in to Cashnet. Look all over and find where you can choose the number of graduate level units you want – 1 (one) – from the expansion menu. Add the one unit to the basket. Pay. Keep a copy of your receipt.
- Go in to WebPortal. It will automatically default to Fall, so you will need to be sure to change the session to summer. Input the schedule number Deb will give you.
- Verify you are enrolled in one (and only 1) unit of MSE 899 and you're good!

Proof of Degree

Students who have finished their degree requirements sometimes need a "letter of completion" for an employer. The SDSU Graduate Affairs can provide that service. They have a standard letter with vetted and approved language. No one else (not the Registrar nor faculty nor departments) should attempt to help with this. Alternatively, students seeks letter of completion from UCSD, by contacting Sara Miceli, UCSD Graduate Division, smiceli@ucsd.edu or (858) 534-6977

IRB

If your dissertation study involves human subjects (which has been the case for all MSED dissertations), you need to submit a protocol regarding the protection of human subjects to the Institutional Review Board at either SDSU or UCSD. Even if all or part of your data collection efforts fall under the auspices of an existing IRB approval (e.g., for your dissertation chair), you are required to submit a protocol for your dissertation study. For guidance (from SDSU), see http://research.sdsu.edu/research_affairs/human_subjects/guidance, The two institutions have a

reciprocal agreement, which means that IRB approval at one university will be honored by the other. Whether you submit your protocol to UCSD or SDSU, you must complete and submit the cover sheet on the next page in order for the reciprocal agreement to be honored.

UCSD-SDSU JOINT DOCTORAL/MASTER'S DEGREE PROGRAMS
COVER SHEET FOR IRB APPLICATION

- Project must qualify for Joint IRB review. For guidance, see "SDSU/UCSD Joint IRB Review Process" at https://irb.ucsd.edu/JDP_IRB_SDSU_UCSD_IRB_FactSheet.pdf and/or the "UCSD/SDSU Agreement for JDP/Master's Degree-IRB Review" fact sheet at http://irb.ucsd.edu/factsheets.shtml.
- Research may commence ONLY when IRB approval is obtained from the reviewing IRB and when the PI receives a copy of the IRB approval letter and this Cover Sheet signed by representatives from the Reviewing and Relying IRB.

Instructions to Principal Investigator:

1. Complete and sign this Cover Sheet.
2. Submit this Cover Sheet with the complete IRB application to the Reviewing IRB (for SDSU IRB submissions, upload this document as a "Supporting Document").
3. The Reviewing IRB will review the IRB protocol and communicate with the Relying IRB. A representative of the Reviewing IRB and Relying IRB will sign this Cover Sheet to document completion of the review process.

Reviewing IRB: Select the IRB based on the primary affiliation of the faculty member supervising this research. Note: For projects that involve VA facilities, UCSD MRI facility, or Rady Children's Hospital, the UCSD IRB must be the Reviewing IRB regardless of the primary institutional affiliation of the faculty mentor. Only research that does not exceed minimal risk and meets criteria for exempt or expedited review may be reviewed under this agreement.

Reviewing IRB	☐ SDSU	☐ UCSD

B. Project Information

Project Title	
Name of Student/Principal Investigator	Name of JDP/Master's Program
Student e-mail Address	Phone Number
Name of Responsible Faculty Member	Home Campus
Faculty e-mail Address	Phone Number
Project Funding Source	

Signature of Principal Investigator _____ Date _____

Representative of Reviewing IRB _____ Date of Approval _____

Representative of Relying IRB _____ Date of Acceptance _____

For IRB Administrative Use Only			
Consent form stamp:	☐ SDSU	☐ UCSD	☐ Both

Version:04-09-2018

Dissertation Checklist

(Prepared by Hayley Milbourne pre-pandemic)

Congrats! You are at the point where a dissertation checklist would be helpful! Here is a list of things you need to do/get signed/sign up for, so you can get that degree at the end. They are in order of when you need to do them. Good luck!

- Apply for graduation through SDSU. If you are graduating in the Spring or Summer, make sure to do this by the end of January.
- Sign-up for a meeting with OGS at UCSD on the formatting. Try to schedule it between when you turn in your dissertation to your committee and you defend. Do not schedule it during the last two weeks of the quarter unless you plan to do the final meeting during those two weeks as well.
- Take the first of two surveys: Survey of Earned Doctorates.
    - Print two copies of the certificate. (one for UCSD, one for SDSU)
- Submit dissertation to your committee four weeks before your defense.
- Meet with OGS.
    - Bring print out of all pages before your first chapter.
    - Bring signed dissertation release form
    - Bring one of the copies of the certificate for completing the SED
    - Submit entire dissertation online prior to your appointment.
- Do the in house OGS survey.
    - Print the certificate at the end and save a PDF copy, just in case.
- Schedule your final meeting with OGS.
- Defend!!
    - Bring two copies of the signature page of your dissertation with a black pen
    - Bring a copy of your JDP5 form
- Meet with OGS again
    - Bring the JDP5, an original of the signature page, the certificate from completing the OGS survey, one copy of the abstract, and a copy of the title page.
    - Make sure to upload your final version of your dissertation the morning before your appointment and check to make sure you don't need to make any changes. Make sure you click through everything when you submit it a second time. You have to do more than just upload the document!
- Trip to SDSU
    - Email Graduate Research Affairs contact before going over there
    - Bring two copies of the signature page (one original, one photocopy)
    - The JDP5 signed by UCSD
    - Copy of the SED completion certificate
    - A copy of your title page
- Trip to Montezuma Publishing
    - A dissertation clearance sheet and a form about embargoing (you will get these at SDSU)
    - A PDF version of your dissertation on a thumb drive
    - $45
- Yay! You are done!

Other Helpful Information

A. SDSU Writing Center

The SDSU Writing Center (http://writingcenter.sdsu.edu/) provides free resources for graduate students to promote their success in writing. In particular, you can make appointments to

receive feedback and guidance from an experienced writer. These 30-minute tutoring sessions can be arranged as in-person or online sessions. You can bring drafts of course essays or parts of your dissertation proposal and receive feedback from a tutor. The Writing Center is located in Love Library, Rm 1103. It is open Mondays and Wednesdays from 10 am to 3 pm and on Tuesdays and Thursdays from noon to 5 pm. You can make an appointment to meet with a tutor at https://writingcenter.sdsu.edu/tutoring-appointments.html

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B. Health Services

SDSU: Use the Calpulli Center at SDSU! It is not just for undergrads. The staff is very qualified and very professional and in addition to everyday care, specialty services including dentistry and optometry are available at low cost. Students pay a mandatory fee for these services each semester. Note that health insurance is not covered in these fees, but with the Affordable Care Act, high quality and affordable insurance is available (see Deb Escamilla for information). The MSED program will work hard to locate funding to pay for your medical insurance (in Years 1-5) although we cannot guarantee this coverage.

UCSD: http://studenthealth.ucsd.edu/**.** Services are available to joint doctoral students, but at a regular fee for service cost, unless tuition has been paid at UCSD (which is typically not the case for MSED students).

C. More on Health – Physical, Psychological, and Spiritual

(Written by Bridget Druken)

Fellow MSED graduate students, I recommend learning more about SDSU's Student Health Services (http://shs.sdsu.edu/) and taking advantage of what they have to offer. To help give you a sense of what there is, I present an infomercial-inspired listing.

Do you feel like l**earning about meditation**? The Counseling and Psychological Services (CAPS) center offers a free course on meditation. It meets weekly with other students at SDSU for around 10-12 weeks each semester.

Do you feel like **talking to an unbiased and talented professional about issues you are grappling with**? Health Services also offer free counseling at CAPS to assist you in challenging times and help you grow.

Do you feel like **sitting in a huge, quiet egg chair**? Anyone is invited to go to the CAPS center, sit and relax between classes.

Do you feel like **learning more about family planning services**? Student Health Services can assist you in signing up for Family PACT, which is free family planning services for men and women on birth control, condoms, safe sex supplies and more.

Do you feel like **engaging in physical activities** to add balance to your cerebral lifestyle? The Aztec Recreational Center (ARC) (http://arc.sdsu.edu/) provides a range of lovely ways to do that, including: cardio machines; a weight room; a range of amazing group fitness classes that include many different styles of yoga, pilates, zumba and spin clases; rec classes; credit classes; Aztec Adventures; wellness programs; sports club; Mission Bay Aquadic Center; tennis courts; a climbing wall; bowling... whew, it's a long list! The ARC offers a one-week free pass to check out all that it has to offer.

Do you feel like **swimming/diving/lounging/hot-tubbing in an outdoor pool**? The Aquaplex (http://arc.sdsu.edu/aquaplex/), which comes included in an ARC membership (but can be purchased without an ARC membership as well), gives you access to two large outdoor solar-heated pools, a spa and full-service locker rooms.

I have enjoyed participating in many of the above and appreciate these opportunities for an all-around education of the body. In the words of Vietnamese Zen Buddhist monk Thict Nhat Hanh, "Peace is every step." So start stepping!

D. Housing

SDSU Housing. SDSU has just begun offering graduate student housing. It is very limited. Check with the SDSU Co-Director as we can only nominate one on the SDSU side. Most students recommend off campus housing:
SDSU Off-Campus Housing Information Link https://housing.sdsu.edu/resources/off-campus

UCSD Housing. https://students.ucsd.edu/campus-services/housing/index.html
UCSD offers a variety of graduate student housing. A student must be admitted before an application for housing will be processed and proof of admission or a current ID card is required upon issuance of a lease. If claiming married or family status, which is priority standing, proof is required. This is a very affordable and desirable option for many. Apply as early as possible!

Other. Rental properties are listed with Craigslist and The Reader. Check with current students for advice on neighborhoods and information on current options.

E. Office Space

Every MSED student is given a desk in (usually shared) office space at CRMSE. Three rooms are in the MSED Suite (Ste 236). Other rooms are part of research project spaces and are located in Ste 206 or downstairs in CRMSE.

UCSD has a large room in York Hall 4080B, which is dedicated to MSED. There is a bank of workstations as well as a printer. The room has a keycard lock and opens with your student ID. The phone number in the room is 858-534-5330.

F. What is available at CRMSE?

Clerical Assistance. CRMSE usually has a student assistant who works part time. If cleared by the CRMSE Office Manager (Deb or Candace) you are welcome to ask for help, for example, with photocopying.

Technical Assistance. Requests for computer/technical assistance go through Deb.

CRMSE Directory. This is an in-house publication

Outgoing Mail. All MSED students have mailboxes in the doctoral student office, Suite 236. MSED faculty have mailboxes in the CRMSE kitchen. Campus mail should go in the appropriate bin on top of the mailboxes in the CRMSE kitchen. There is a USPS mailbox conveniently located in front of the main Alvarado building, convenience stamps available for purchase in the student office. Our USPS address is: CRMSE, 6475 Alvarado Road, Suite 206, San Diego, CA. 92120-5013. The CRMSE campus mail code is MC 1862

Office Supplies. Office supplies (post-it notes, pens, etc.) for doctoral students are available in the Doctoral Student Office. A request form is also posted.

Copier, Fax, and other Office Devices. CRMSE has a copier with excellent capabilities including PDF. Ask the CRMSE Office Manager for a personal copy code. Currently, copies are 3 cents per page for doctoral students, with invoices issued every quarter (sorry, no cash payment even for small amounts; not our choice, Foundation rules). CRMSE fax number is 619-594-1581.

***MSED Equipment*:** Several digital video camcorders, tripods, PZM microphones, and headphones are available for data collection. These are kept in the cabinets above the couch in the doctoral student suite, Suite 236.

***CRMSE Equipment*:** Digital still and video cameras, projector, laptop and other pieces of office and presentation equipment are available for loan – see the inventory list inside the Supplies Room in 206. Advance reservations may be made. All must be signed out. (The equipment is not insured; individuals are responsible for any loss or damage.)

Kitchens. Please keep them tidy. Wash, dry and put away your own dishes. Food left on the counter in the MSED office and in the CRMSE kitchen is assumed to be for sharing. Inside the fridge, unlabeled food belongs to someone. We actively encourage recycling!

Security. Call 911 from any internal phone to be connected to campus police. This is a publicly-accessible building. Please keep suite doors closed and locked. Internal doors may be left unlocked, no problem.

Facilities. Ask Deb or Candace to call Facilities to report blocked toilets etc. If they're not here, in an emergency call 45761 from any internal phone.

Phones. You can use the phones for outgoing campus and local calls and for incoming calls. For campus numbers, dial the last 5 digits. For off-campus local calls, press 8 for an outside line.

Internet. At SDSU and CRMSE, you can use the eduroam network. To register, see instructions at https://it.sdsu.edu/internet/eduroam.

G. Library Use

- SDSU Love Library: https://library.sdsu.edu/
- UCSD: http://libraries.ucsd.edu/
- A student's current photo ID entitles them to a card and full library privileges.
- The **Sowder Library**, donated by professors emeritus Judy and Larry Sowder, is housed in the Doctoral Student Suite at CRMSE. This collection of texts in mathematics and science education research provides a valuable resource for MSED students and CRMSE members.

H. Aztec Shops

Aztec Shops on the SDSU campus offers deep discounts on some software, for example, For years we've been able to get Microsoft Word for $16.

I. Campus Maps & Parking

- Campus maps are available at https://map.concept3d.com/?id=801#!ct/40419,40418,20161,15205,48503,54894
- and https://maps.ucsd.edu/map/default.htm

- UCSD offers a free Triton Link bus pass that can be used on ANY San Diego bus or trolley.

- Students who join the UCSD Bike Club are eligible for a free booklet of 10 day passes.

- UCSD parking is free at meters on university holidays, weekends, and from 11 pm to 7 am weekdays.

- MSED provides students with $300 to put toward transportation (parking passes or public transportation)

- UCSD Valet Parking Information. Valet locations provide convenient access to central campus areas including the School of Medicine, Chancellor's Complex and Price Center. Valet Service is available in parking lots: https://transportation.ucsd.edu/visit/visitor/medical.html
    -

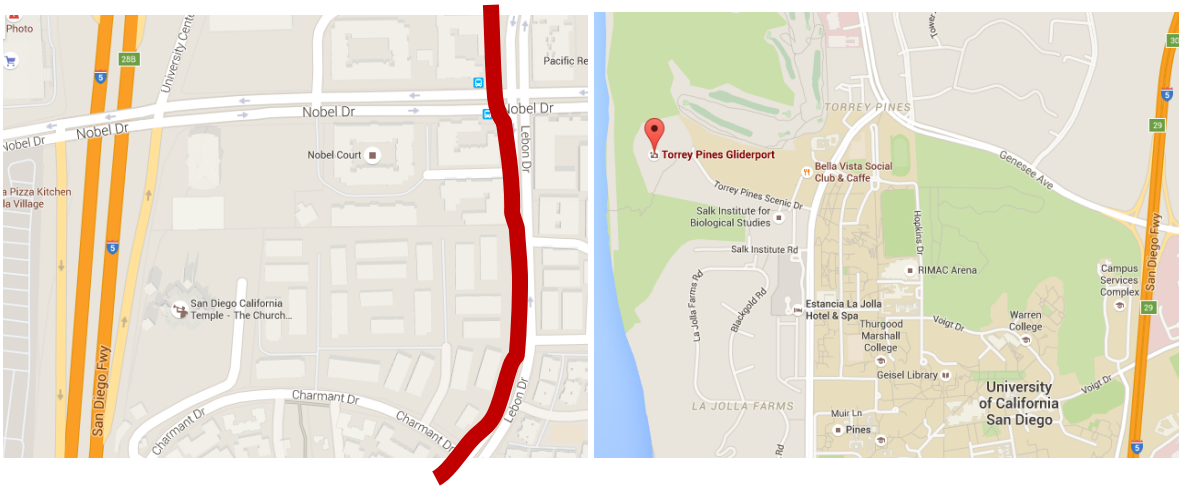
If you have questions, contact the UCSD campus parking office.

J. **How to Get to UCSD** – Prepared by Katie Bjorkman

Drive. A good option at certain times of day. The drive itself is under 30 minutes if there is no traffic. There will be fairly heavy traffic going SDSU to UCSD from 7-10 am and UCSD to SDSU from 3-6pm which makes it closer to an hour driving + parking time.

Parking can be difficult at UCSD even with a parking pass. At SDSU, you can always park at CRMSE without a parking pass. Off-campus at UCSD, my best luck has been on Lebon Dr just south of Nobel. You can then catch the "superloop" 201/202 bus at either end of the block to get to campus (202 to campus, 201 back). Note that the bus runs every ~7 minutes but is sometimes full/can't take on more passengers so leave enough wiggle room to wait 15 minutes. The campus shuttle also stops on the north end of the block.

I have also been told that there is free parking within walking distance to the north part of campus at the Torrey Pines gliderport, but I have never parked there and I am not sure if there are time or other restrictions. There is also street parking a few places in La Jolla, but the businesses that say "no UCSD parking" mean it, so be careful!



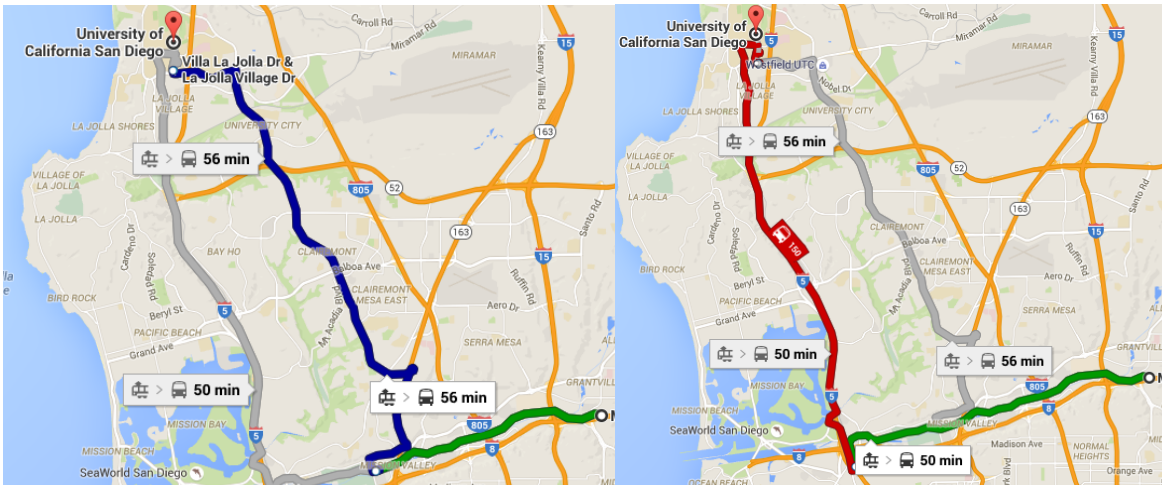
Public transit. Transit is great for those of us who like to save on gas and/or save the planet. The Green Line trolley can be caught a block from CRMSE or on campus at SDSU. Take it toward 12th St/Imperial, it runs every 15 minutes during the day.

From there you can get off at Fashion Valley and catch the 41 bus (non-express) every 15 minutes during the day or continue two additional stops to Old Town and catch the 150 bus (express) every 30 minutes during the day – both buses run more often during peak hours and both take you to UCSD. I leave about an hour and half (either direction) for the transit as sometimes the trolley gets in just as the bus is leaving or vice versa. Whether the express bus that runs less often and is caught two stops farther is faster or not is a function of time of time and how well the bus/trolley schedules coincide at that stop.

The 30 bus is best avoided… it technically runs from Old Town to UCSD, but makes an excessive number of stops in Pacific Beach. It is usually faster to wait 30 minutes for the next 150 bus. There is also a shuttle that runs from UCSD to Old Town to Hillcrest Medical Center that is free for

UCSD students. Pay attention to which way the "loop" is running to avoid an exceptionally longer than planned commute! Find the current schedule on the UCSD website.

Addendum to Katie's description: Trolley Blue line has new trolley stations at Tecolote Rd., Clairemont Dr., Balboa Ave., Nobel Dr., V.A. Medical Center, UC San Diego campus (2 stations), Executive Dr., and UTC. Service frequency north of America Plaza will be every 15 minutes, seven days/week, with a span of service similar to current.



Travel Funds

Sowder Research Award

The Judy and Larry Sowder Research Award offers MSED students up to $1000 to support their research program and professional growth. The award may be used for activities such as a research presentation at a national conference, software or hardware to support progress on the dissertation, stipends for interview participants, and other research activities that contribute to the applicant's professional growth as a mathematics and science education researcher. Applications will be reviewed by the MSED Steering Committee.) Each student may receive at most one award during their tenure as a graduate student in the MSED program. **Proposal due dates**: October 15 and February 15. See Deb for application.

SDSU Travel Funds

- **Graduate Student Travel Fund.** Funds may be used for national or international travel to a conference where the student is presenting, or field work associated with research/scholarship. Travel for short courses (or other training activities) is not supported. The Graduate Student Travel Funds are available to all degree-seeking SDSU graduate students with a post-baccalaureate cumulative GPA of at least 3.00. The maximum award is $1,000. See http://grad.sdsu.edu/funding/travel_fund For application details. Typically the deadline is mid-July.

- **College of Science Instructionally Related Activities (IRA) Travel Funds.** The College of Sciences receives Instructionally Related Activities (IRA) funds to help support student travel to professional meetings to present the results of their research. In order to apply for IRA funds, the student must be enrolled in a College of Sciences undergraduate or graduate program. Applications will be considered two times during the academic year, the deadlines are as follows: **November 1** is the deadline for Fall semester travel (July 1- Dec. 31) and **April 1** is the deadline for Spring semester travel (Jan. 1- June 30). In the past the awards have ranged from $50-$150 for in-state travel, $200-$350 for out-of-state travel and $400-500 for international travel. See Deb for an application (which requires multiple forms). There are states for which travel is banned because they have laws that authorize or require discrimination on the basis of sexual orientation, gender identity, or gender expression. **UCSD GSA Travel Grants** – paused because of covid. See https://gpsa.ucsd.edu/grad-resources/travel-grants.html
-

Appendix: JDP Forms

It is the student's responsibility the following forms are completed and in a timely manner. Originals, not copies, are required. Regarding signatures, each form proceeds in order down the page, requiring many inter, and often intra-campus stops. The deans will not sign until everything else has been properly filled out; any fees paid, dissertation copies submitted, etc. Allow sufficient time for this entire back and forth process to occur. Completed copies of all forms will reside in the student's files on each campus.

As of Summer 2020, all of these forms have been recreated for use online (with digital signatures), due to the pandemic. However, their content has remained the same.

JDP-1: Notice of Admission

This form is signed shortly after a student's acceptance to the program, indicating intent to enroll in the program.

JDP-2: Nomination for Qualifying Examination

This form is used for the nomination of the dissertation committee. It must be approved and signed by the student's chair and the current UCSD representative as well as both graduate division deans. Committee signatures are not required on this form, however, the committee must be approved by the campus deans before the defense of the dissertation proposal.

JDP-3: Advancement to Candidacy

This form is required at the defense of the dissertation proposal. It requires signatures from the entire committee. Each member must mark a yes or no on approval. Once this form has been completely processed, with fees paid, all signatures obtained, etc., a letter from UCSD will be mailed showing advancement to candidacy status. The letter will be accompanied by a copy of the completed JDP-3 and a book with formatting rules for the dissertation.

JDP-4: Change in Dissertation Committee Membership

This form is to be used only if there is a change in committee and the JDP-2 has already been approved. It is **not** permissible to simply add a name or substitute someone on the original JDP-2, the entire approval process must be gone through a second time using this alternate form.

JDP-5: Approval for Doctoral Degree

This is the form taken to the final defense of the dissertation. Again, all members of the committee must sign and indicate a decision on approval. This form has to accompany the final copies of the dissertation when they are turned in as it needs to be signed off on by the various departments at both universities.

Second Year Exam Form

This is an internal MSED form that is used to record the outcome of the second year exam.

Notice of Admission to a Doctor of Philosophy Degree Program

Recommendation

After due deliberation, the cooperating faculty of the two institutions recommend for admission:

Student Name: _____ ____MSED
Last First MI RedID Program

Beginning: Fall _√_ Winter ___ Spring ___ term of 20_
This student will enroll during the first term of attendance at:
SDSU only __ UCSD only __ both campuses _√_
The first term this student will enroll at UCSD is: Fall _√_ Winter __ Spring __ 200_

_____ / _____
SDSU Faculty Adviser UCSD Faculty Adviser

Recommended: _____
SDSU Program Director (signature) Date

_____
UCSD Group Chair (signature) Date

Approval

Upon recommendation of the participating departments at SDSU and UCSD, the above named student has been formally accepted for admission to the joint doctoral program in Mathematics and Science Education.

_____/_____ _____/_____
Dean, Graduate Division and Research, SDSU Date Dean, Office of Graduate Studies and Research, UCSD Date

Applicant Notification

You have been admitted to San Diego State University with classified graduate standing and the University of California, San Diego with graduate standing. If you intend to enter the joint doctoral program at these institutions in the term specified, complete the following information and sign.

Local Address: _____ /_____
No. and Street City State Zip Local Telephone

Permanent Address: _____ /_____
No. and Street City State Zip Telephone

_____
Student's Signature Date

****RETURN THIS NOTICE BY _____ TO:**

Univ. Calif, San Diego – Graduate Admissions
9500 Gilman Dr., 516 University Center
La Jolla, CA 92093-0086

NOMINATION OF THE DOCTORAL COMMITTEE FOR QUALIFYING EXAMINATIONS FOR THE DEGREE OF DOCTOR OF PHILOSOPHY IN MATHEMATICS AND SCIENCE EDUCATION

Name_____
Last First Middle RedID UCSD Student#
Address_____
Number and Street City State Zip Telephone

To: Dean, Graduate Studies and Research, UCSD / Dean, Graduate Division and Research, SDSU

In the opinion of the Group of MSED at our respective institutions, the student named is ready to proceed to the Qualifying Examinations for the degree of Doctor of Philosophy. The proposed field of study is: Mathematics and Science Education.

The following persons, who have agreed to serve, are nominated as the Joint Doctoral Committee for the Qualifying Examinations:

Name and Academic Title	**Department**	**Institution**
_____ Chair	_____	_____
_____ Co-Chair (if applicable)	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

Approved SDSU:

_____
Graduate Adviser

Date_____

Approved UCSD:

_____
Dept./Group Chair

Date_____

_____
Dean, Graduate Division and Research, SDSU

Date_____

_____
Dean, Graduate Studies and Research, UCSD

Date_____

Joint Doctoral Program

REPORT OF THE QUALIFYING EXAMINATION AND ADVANCEMENT TO CANDIDACY FOR THE DEGREE OF DOCTOR OF PHILOSOPHY IN MATHEMATICS AND SCIENCE EDUCATION

Name_____
Last First Middle RedID UCSD Student#

Address_____
Number and Street City State Zip Telephone

To: Dean, Graduate Studies and Research, UCSD / Dean, Graduate Division and Research, SDSU

The members of the Joint Doctoral Committee for the Qualifying Examination report that the candidate has completed all pre-dissertation requirements in the major and taken the qualifying examination on (date):

Committee Member	**Signature**	**Institution**	**Approval of Qualifications**
_____ Chair	_____	_____	__Yes __No
_____ Co-Chair (if applicable)	_____	_____	__Yes __No
_____	_____	_____	__Yes __No
_____	_____	_____	__Yes __No
_____	_____	_____	__Yes __No

The committee recommends advancement to candidacy for the degree of Doctor of Philosophy in Mathematics and Science Education

Approved SDSU: Approved UCSD:

_____ _____

Graduate Adviser *Group Chair*

Date_____ Date_____

The candidacy fee has been paid. _____
validated by UCSD Cashier Date

I request advancement to candidacy. I plan to complete my dissertation by: _____
Date

_____ _____

Signature Date Signed

Advancement to candidacy approved:

_____ _____

Dean, Graduate Division and Research, SDSU *Dean, Graduate Studies and Research, UCSD*

Date_____ Date_____

***use only if the Doctoral Dissertation Committee is different from the Qualifying Exam Committee**

Joint Doctoral Program

NOMINATION OF THE DOCTORAL DISSERTATION COMMITTEE FOR THE DEGREE OF DOCTOR OF PHILOSOPHY IN MATHEMATICS AND SCIENCE EDUCATION

Name_____
Last First Middle RedID UCSD Student#

Address_____
Number and Street City State Zip Telephone

To: Dean, Graduate Studies and Research, UCSD / Dean, Graduate Division and Research, SDSU

The student named has established eligibility for the nomination of a dissertation committee.

Proposed title of dissertation: _____

The following persons, who have agreed to serve, are nominated as the Doctoral Committee:

Name and Academic Title	**Department**	**Institution**
_____ Chair	_____	_____
_____ Co-Chair (if applicable)	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

Approved SDSU:

_____
Graduate Adviser

Date_____

_____
Dean, Graduate Division and Research, SDSU

Date_____

Approved UCSD:

_____
Dept./Group Chair

Date_____

_____
Dean, Graduate Studies and Research, UCSD

Date_____

Joint Doctoral Program

REPORT OF THE FINAL EXAMINATION AND FILING OF THE DISSERTATION FOR THE DEGREE OF DOCTOR OF PHILOSOPHY IN MATHEMATICS AND SCIENCE EDUCATION

Name_____
Last First Middle RedID UCSD Student#

Print name as it is to appear on the diploma _____

Address_____
Number and Street City State Zip Telephone

To: Dean, Graduate Studies and Research, UCSD / Dean, Graduate Division and Research, SDSU

The members of the Doctoral Committee report on the candidate's final examination:

Committee Member	**Signature**	**Approved for Degree**
_____	_____	__Yes __No
Chair		
_____	_____	__Yes __No
Co-Chair (if applicable)		
_____	_____	__Yes __No
_____	_____	__Yes __No
_____	_____	__Yes __No

The final examination and dissertation are __ unanimously __ not unanimously approved,and the candidate is __ recommended__ not recommended for the award of the degree of Doctor of Philosophy in Mathematics and Science Education in the Group of Mathematics and Science Education as of (date) _____

Dissertation Title:_____

_____ _____
Graduate Adviser *Group Chair*
Date_____ Date_____

The candidate has fulfilled all academic and registration requirements with the exception of depositing the dissertation with the Library and SDSU

Date _____Dean, Graduate Studies and Research, UCSD_____

Dissertation accepted for deposit.

_____ _____
Graduate Division Office, SDSU *Librarian, UCSD*

Conferral of the degree is recommended as of _____
(month, day, year)

_____ _____
Dean, Graduate Division and Research, SDSU *Dean, Graduate Studies and Research, UCSD*
Date_____ Date_____

MSED Second-Year Examination

Student's Name_____

The committee members have examined the above student in the disciplinary area of

_____

On the **ORAL** portion of this examination, we agree that the student receive a

PASS CONDITIONAL PASS FAIL

In the case of a conditional pass, the following are conditions for PASS (may be attached):

Faculty Responsible _____Due Date_____

On the **WRITTEN** portion of this examination, we agree that the student receive a

PASS CONDITIONAL PASS FAIL

In the case of a conditional pass, the following are conditions for PASS (may be attached):

Faculty Responsible _____Due Date_____

This is the student's first ____ second _____ attempt at the Second-year Examinations.
(Note: Students who fail either portion of the examination will be permitted to retake the entire examination once and within 6 months of the date of the first attempt.)

Signatures of committee members: (printed names)

_____ _____
Chair

_____ _____

_____ _____

_____ _____

Date:_____