The 795A/B course sequence is different from the other courses you have taken in this MA program. Rather than reading articles and reacting to the research described in them, you select your own research topic, design your own study, collect and analyze data, and write a paper that would be appropriate to share with your peers. In this respect, you should think of this course sequence as one that will support your growth as a teacher-researcher. At the end of this course sequence, we expect that you will have built upon your knowledge base from ED 690 so that you can engage in systematic inquiry long after the program has ended.

Specifically, you will:

• select appropriate and timely research topics that allow you to conduct research in your own classroom or at your school site;
• identify and locate relevant research literature to support your own research study and design;
• create several different types of data collection instruments;
• systematically collect data;
• devise coding schemes and analyze data sets;
• triangulate data to synthesize big ideas from your data analysis;
• write a paper about those big ideas that you could share with your peers; and
• communicate your research findings through presentations.

The goal of these projects is to help you better understand how both reading and engaging in research can help you with your practice. Through this experience, we hope that you will recognize that it is not only possible, but realistic for you to engage in research even after the masters program has ended. In addition to engaging in research to improve your own practice, we hope that this project will encourage you to add your voice to a broader dialogue on mathematics education -- perhaps you will publish an article, speak at a conference, or mentor your colleagues.

Course Requirements
During ED 795A, your project group:

• identified a research question and designed a study about a topic in mathematics education
• prepared an annotated bibliography
• created instruments
• systematically collected data
• began analysis of your data
During ED 795B, each project group will:

- analyze each data source
- triangulate data sources to identify themes that cut across the data sources
- present selected findings at a class poster session
- submit an electronic project binder to provide a running record of project work
- write a 10-page paper similar to articles in Teaching Children Mathematics or Mathematics Teaching in the Middle School

Grading Policy
We hope that we all recognize that grades are designed to reflect what one knows and what one has learned, but they do so inadequately. All grading systems are subjective, even those that are based solely on objective tests. But we do not want grades to interfere with your learning in this course, and we know how important grades are to some people, so we have decided that if your work is less than acceptable on any assignment, we will let you know so that you may redo the assignment. Because this is a graduate course, students are expected to maintain at least a B average. Therefore, if you turn your work in on time, you may assume that, unless we speak to you, we consider your work to be thoughtful and you are maintaining a passing grade. To earn an A, you should consistently grapple with the ideas at a deeper level, and we will expect this depth to be reflected both in your submitted work and in your comments during class and project-meeting discussions.

Because this course is focused on personalized group projects, attendance and participation are essential, and we will consider both in your final grade. We recognize that situations arise that might require you to miss a class or project meeting, so everyone is allowed one absence without penalty so long as you turn in the assignment in a timely fashion. If you miss a class or meeting, you should email your advisor the assignment by the date it is due unless you have made other arrangements with her. If you are absent more than once, it is your responsibility to speak to your advisor to determine whether you need to do anything to make up the absence. If you do not speak to your advisor, your final class grade will be deducted half of one grade for every absence after your first.

Many of you are currently serving as full-time teachers while enrolled in two graduate courses, so we know how busy you will be this semester. However, we have found that students with busy schedules who fall behind find it difficult to catch up. Therefore, we will note assignments that are turned in late, and if you consistently turn in late work, this will result in a lower final grade. We also understand that life presents circumstances for which we cannot plan, so please come speak to us if you find you are having difficulty keeping up with the work, and we will do what we can to work with you.

Progress Reports (due after each meeting)
After every meeting with your advisor, each project group will email their advisor the following information:

a) summary of the issues discussed/decisions made in the meeting just completed
b) summary of what you are working on for the next meeting
c) summary of any long-term tasks you are currently working on

Note: These progress reports are due within 3 days following your meeting.
<table>
<thead>
<tr>
<th>Date</th>
<th>Room</th>
<th>Type of Session</th>
<th>What is due</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jan 27 or Feb 3</td>
<td>CRMSE</td>
<td>60-minute meetings</td>
<td>Data Source 1 Analysis Due</td>
</tr>
<tr>
<td>Feb 4</td>
<td>Check Web Portal</td>
<td>No meeting</td>
<td>Last day to apply for May 2014 graduation</td>
</tr>
<tr>
<td>Feb 10 or Feb 17</td>
<td>CRMSE</td>
<td>60-minute meetings</td>
<td>Data Source 2 Analysis Due</td>
</tr>
<tr>
<td>Feb 24 or Mar 3</td>
<td>CRMSE</td>
<td>60-minute meetings</td>
<td>Data Source 3 Analysis Due</td>
</tr>
<tr>
<td>March 10</td>
<td>NO CLASS – begin work on draft #1 of project paper</td>
<td>Whole class meeting, 4:15-7</td>
<td>Integrated Data Analysis (Email to your advisor).</td>
</tr>
<tr>
<td>March 17</td>
<td>CRMSE, Suite 218</td>
<td>Whole class meeting, 4:15-7</td>
<td>NA</td>
</tr>
<tr>
<td>March 19</td>
<td>NO CLASS – WORK ON DRAFT #1 of PROJECT PAPER</td>
<td>Whole class meeting 4:15-7</td>
<td>Draft #1 (Writers’ Workshop)</td>
</tr>
<tr>
<td>March 24</td>
<td>CRMSE Ste 218</td>
<td>Whole class meeting 4:15-7</td>
<td>Draft #1 (Writers’ Workshop)</td>
</tr>
<tr>
<td>Mar 25-27</td>
<td>GRAD FEST (in front of the SDSU bookstore)</td>
<td>Whole class meeting 4:15-7</td>
<td>Draft #1 (Writers’ Workshop)</td>
</tr>
<tr>
<td>March 26</td>
<td>CRMSE Ste 218</td>
<td>Whole class meeting 4:15-7</td>
<td>Draft #1 (Writers’ Workshop)</td>
</tr>
<tr>
<td>Mar 31 and April 2</td>
<td>NO CLASS, SPRING BREAK</td>
<td>Whole class meeting 4:15-7</td>
<td>Draft #1 (Writers’ Workshop)</td>
</tr>
<tr>
<td>April 14</td>
<td>EMAIL DRAFT #2 TO ADVISOR</td>
<td>Whole class meeting 4:15-7</td>
<td>Draft #1 (Writers’ Workshop)</td>
</tr>
<tr>
<td>April 16 or April 21</td>
<td>CRMSE</td>
<td>60-minute meetings</td>
<td>Draft #1 (Writers’ Workshop)</td>
</tr>
<tr>
<td>April 28</td>
<td>NO CLASS, Work on Paper, Poster, Presentation</td>
<td>Whole class meeting 4:15-7</td>
<td>Draft #3 (Writers’ Workshop)</td>
</tr>
<tr>
<td>April 30</td>
<td>CRMSE Ste 218</td>
<td>Whole class meeting 4:15-7</td>
<td>Draft #3 (Writers’ Workshop)</td>
</tr>
<tr>
<td>May 5</td>
<td>CRMSE Ste 218</td>
<td>Whole class meeting 4:15-7</td>
<td>Draft #3 (Writers’ Workshop)</td>
</tr>
<tr>
<td>May 12</td>
<td>TURN IN FINAL PAPER DURING TE 790 (ELECTRONIC BINDER SHOULD ALSO BE FINALIZED)</td>
<td>Draft #3 (Writers’ Workshop)</td>
<td></td>
</tr>
<tr>
<td>THURSDAY, May 15</td>
<td>Poster Session &amp; Celebration!</td>
<td>Aztec Student Union, Templo Mayor, 4:30 pm – 7:00 pm</td>
<td>COMMENCEMENT – Viejas Arena - CONGRATULATIONS!!</td>
</tr>
<tr>
<td>Sunday, May 18, 9:00 am</td>
<td>COMMENCEMENT – Viejas Arena</td>
<td>Whole class session — family and friends are welcome</td>
<td>COMMENCEMENT – Viejas Arena - CONGRATULATIONS!!</td>
</tr>
</tbody>
</table>
Data Analysis
Your project group has already identified a specific research question related to something you would like to understand better. You have also collected data to address that research question. You are now beginning to analyze your data from at least 3 data sources.

First, you will analyze each data source separately. What story does each set of data tell? These stories may answer all or just part of your research question. In collaboration with your research advisor, you will determine the types of analyses that are most appropriate for each data source. The analysis of each data source is due during your one-hour meeting with your advisor.

Jan 27 or Feb 3  Data Source 1 Analysis Due
Feb 10 or Feb 17 Data Source 2 Analysis Due
Feb 24 or Mar 3  Data Source 3 Analysis Due

For each data source, each project group should turn in:

a. Definitions of the final codes you used
b. Completed summary coding sheet(s)
c. Summary coding sheet(s) should reflect the coding of all participants, not the individual work (e.g., written tests, interview performance, etc.) of each participant. These summary coding sheets may take the form of tables, graphs, lists of key quotes, etc.
d. Bulleted list of observations about the data
e. This list should reflect what you have noticed from your summary coding sheet(s). You should have at least 3 bulleted observations but some lists may be lengthy (e.g., 15 bulleted observations). You do not need to organize this list in any particular way for this first pass at the analysis.
f. 1-3 paragraphs highlighting major conclusions and key evidence to support those conclusions

These paragraphs should identify the big story told by this set of data. For each big idea you highlight, be sure to point to 1-2 pieces of evidence that led you to that conclusion. You may (and probably will) reuse some of the observations from your bulleted list as evidence. However, these paragraphs should be more than a reordering of your bulleted list. You need to take a step back and identify the most important ideas emerging from the data. (In contrast, in the bulleted list, you should identify as many ideas as possible.)
Second, you will consider all of your data sources together to create an integrated data analysis. You will answer your research question by comparing and contrasting the data from all three of your data sources. After integrating the data, what story emerges? Be sure to consider the strength of your evidence for different parts of the story as you will need to support any conclusions you make.

March 10– Integrated Data Analysis due (email this analysis to your advisor)

Each project group should turn in a short paper (about 3 pages) describing:

• 2-4 major conclusions in response to your research question

You want to identify the major outcomes of your study. It may be difficult to “throw out” some of your conclusions but you want to think about what is most important. If a colleague asked you what you learned in response to your research question, what would be your 5-minute response? It is these ideas that you want to highlight in this write-up.

• Key evidence to support the major conclusions

How would you convince your colleagues of the conclusions you identified above? Remember that evidence from more than one data source is generally more powerful than evidence from a single data source. Therefore, when you identify the key evidence to support each conclusion, be sure to think about how to integrate your findings from all of your data sources.

• Two implications for your teaching practice (based on your major conclusions)

One of the main goals in doing your research project is to improve your practice (and perhaps the practice of your colleagues). Think about your results and identify 2 implications for your practice — in other words, what have you learned from your project that can help you improve your teaching (inside or outside the classroom)? What results led you to those implications? Describe each implication and provide evidence from your study that supports that implication. [This is the SO WHAT part of your work!]
Final Paper

As the final part of your project, you and your partner will write a 10-page paper appropriate for Teaching Children Mathematics or Mathematics Teaching in the Middle School. You will need to consider everything you have done up to this point and decide what would make a good paper – what would other teachers most like to read about what you have done. You will not be able to include all the data you have collected so you will need to determine what points are most important and what data provides the most convincing evidence.

You will have help from your colleagues and the instructors in making these decisions and then outlining and writing a paper to tell that story. Toward the end of the semester, we will spend several weeks discussing your papers utilizing a writers’ workshop format. You should be prepared to write and receive feedback on at least 3 drafts of your paper before submitting a final draft on May 12.

DUE DATES:

<table>
<thead>
<tr>
<th>March 24 or March 26</th>
<th>Draft #1</th>
</tr>
</thead>
<tbody>
<tr>
<td>April 14</td>
<td>Draft #2</td>
</tr>
<tr>
<td>April 30 or May 5</td>
<td>Draft #3</td>
</tr>
<tr>
<td>May 12</td>
<td>Final version of Paper</td>
</tr>
</tbody>
</table>

Groups for writers’ workshop (including on which dates you will present Draft #1 and #3) will be discussed during class.

NCTM writing hints

• Write about one main idea, or two at most. Including more ideas than this produces a paper without a focus or one that says many things, but nothing in depth. "Inch deep, mile wide" papers are generally not well received by reviewers.
• Write with controlled enthusiasm. Be positive, but in a professional way. Don't use a lot of bold print, italics, or exclamation points to show emotion.
• Write about something you know very well. Include evidence (photographs, student work, vignettes, etc.) that you used this material with students.
• Start with an outline of your paper. Begin the paper in a way that attracts a busy teacher and leaves a clear impression of what the paper is about.
• Make one point in each paragraph. Be sure that there is transition from one paragraph to another. Use headings and subheadings to organize the paper.
• Conclude the paper with reflections on what you or your students learned, and what you might change in the future.
• Run a spell checker. Review the paper, changing passive voice to active voice. Have colleagues who write well read the paper critically, and be ready to accept their advice -- expect to rewrite!
Format for Final Paper

- Font size: 12 point
- Font Type: Times New Roman
- Top and Bottom Margins: 1 inch
- Left and Right Margins: 1.25 inches
- Double-space the majority of the manuscript unless single-spacing would improve readability (check with your advisor). Single-spacing can be used for table titles and headings, figure captions, long quotations (40 words or more), and references (but use double-spacing between references).
- Long quotations (40 words or more) should be indented 5 spaces.
- References should be in APA format (Check with your advisor if you have a source other than the types listed below.)

Journal article

Book

Chapter in an edited book

- Heading Levels:
  
  **Level A Heading: Major Sections Heading or the Main Title**

  Your text begins here where you write something brilliant.

  **Level B Heading: At Left Margin in Italics and Capitalize Important Words**

  Your text begins here where you write something brilliant.

  **Paragraph heading in italics, capitalize first word, & end with a period.** Your text begins here where you write something brilliant.

- See next page for the format of the title page
This manuscript is submitted in partial fulfillment of the requirements for the Master of Arts Degree in Education with a concentration in Mathematics Education (K-8) 2014 San Diego State University
Poster and Poster Session Guidelines

Congratulations! You have almost finished your MA project and degree. Soon it will be time to show off all your hard work to other faculty, students, family, friends, and each other! We will have a poster session during class on Thursday, May 15, 2014, from 4:30-7:00 pm (Templo Mayor in the new Aztec Student Union).

Each pair will need to create a poster that has 2-3 panels with each panel consisting of at least 22 inches by 28 inches of poster board. On the panels, you should provide a summary of your project such as:

- the title of the project and your names,
- your project rationale,
- a few key references from your literature review,
- an outline of what data you collected,
- a few sample data collection items/instruments,
- highlights of what you found with a few pieces of supporting evidence, and
- implications or recommendations based on your findings.

Note: There is not a single right way to make a poster. However, you should not simply write a shortened paper and paste it onto the poster board. The goal of a poster is that a person can come to your poster, look at it for a few minutes, have a general sense of what happened in your project, and consider some of your more interesting findings. The poster should serve as a catalyst for that person to ask you questions. Therefore, you should use large fonts and maybe bullets, graphs, etc.

We will view some sample posters in class, but it might be helpful to think about your poster this way: You will be viewing 10 other posters – what would you like to see?

During the poster session, the format for that night will be:
1. Each group will have 3 minutes to provide an overview of their project and findings.
2. Each group will share a poster to showcase their work. During this part of the evening, you will stay by your poster in order to answer questions from interested visitors! There will also be some time for you to visit the other projects’ posters.
Electronic Binder Components
(due Monday, May 12)

The completed binder provides a running record of project work over the past year. It should contain:

• Progress Reports after meetings with advisors and any other email exchanges (or portions of email exchanges) that were particularly useful in helping you progress in your project.
• Reference Annotations (within program)
• Reference Annotations (outside program)
• Reference Switch Reflections
• Data Collection Instruments (e.g., surveys, interview questions, etc.) or Preliminary Project Design and Data Catalog
• Final Project Design and Data Catalog
• Analysis for Data Source 1 (& a few samples of data, if possible)
• Analysis for Data Source 2 (& a few samples of data, if possible)
• Analysis for Data Source 3 (& a few samples of data, if possible)
• Integrated Data Analysis
• Draft 1 (shared in Writers’ Workshop #1)
• Draft 2 (submitted to Lisa or Randy on April 14)
• Draft 3 (shared in Writers’ Workshop #2)
• Final version of project paper

Note: Papers included in the e-binder can be clean copies or copies that contain notes from Lisa or Randy.