A. COURSE DESCRIPTION:
PTEP Admission. Prepare teachers to teach mathematics and content areas to students with disabilities. Scientifically research-based and validated methods will be emphasized for effective instruction, technology use, and collaborative support.

B. PREREQUISITIES:
Full PTEP Admission

C. RELATIONSHIP OF THIS COURSE TO THE PROGRAM KNOWLEDGE BASE:
The faculty of the School of Special Education believe:
- Students with exceptionalities are part of a larger community of diverse learners;
- All students can learn when provided with effective instruction, advocacy, and supports;
- Learners with exceptionalities excel when they are held to the same high standards and expectations as all other students; and
- The larger mission of education is best served when special educators collaborate with families, general educators, and related services professionals.

This course develops understanding of and skill in methodologies to support the academic progress of learners with disabilities in mathematics and content areas through effective instruction and collaborative supports.

D. PROFESSIONAL STANDARDS MET:
- Colorado Department of Education (CDE) Standards for the Special Education Generalist:
  9.06(2); 9.06(3)(a-d) (f-g); 9.06(4)(b); (4)(c)(ii)-(civ); (4)(e); 9.06(5)(c)(i) & (ii); (5)(e),(5)(g-h),(5)(i)(ii); 9.06(6)(b)(i),(6)(c),(6)(d)(vi); 9.06(7)(a)-(c)
- CEC Standards (Individual General Curriculum):
  GC3K1, GC4K1, GC4K3, GC4K5-7, GC4S1-7, GC4S10-16, GC4S1-2, GC4S10-11, C5S3, GC6S2, GC7S2-4, GC8S3, GC8S5, GC10S2
- Colorado Reading Directorate (CRD): 5.01, 5.01.1, 5.01.3, 5.01.5

E. GOALS AND OBJECTIVES OF THE COURSE:
1. To prepare teachers to teach mathematics to students with disabilities with appropriate assessments and methodologies.

   a) Develop in students with disabilities the knowledge and skills in the use of number systems, number sense, geometry, measurements, statistics, probability, mathematical functions, and the use of variables using short and long-ranged standards-based instructional plans with effective instruction based on assessment of student needs.

   b) Assess the mathematical skills and understandings using a variety of formal and informal assessments and to communicate the results of the assessments to students, parents, teachers, and other professionals.

   c) Monitor and document student growth in the understandings and skills of mathematics and to make appropriate adaptations in instruction

   [CDE: 9.06 (2),(3)(a),-,(d),(3)(f), (3)(g), (4)(b),(4)(c)(ii)-(c)(iv),(4)(e), (5)(c)-(c)(ii), (5)(e), (5)(g),(5)(h),(5)(i)(ii),(6)(b)(i),(6)(c), (7)(a)-(c)]

   [CEC GC3K1, GC4K1, GC4K3, GC4K5-7, GC4S1-7, GC4S11-12, GC5S3, GC6S1, GC7S2-4, GC8S3, GC10S2]

2. To prepare teachers to teach content area strategies and enhancements in order to assist student with disabilities in content areas to meet the Colorado Content Standards in collaboration with general education teachers.

   a) Collaborate with other school professionals, families and students. To assist learners in using learning strategies and adaptations required in order for student to meet Colorado Model Content Standards.

   b) Assist general education teachers to extend student learning using research-based best practices in instruction and adaptation of curriculum and instruction in content areas that meet specific learner needs and strengths.

   c) Use educational and assistive technology to meet the instructional needs of students with disabilities in direct instruction and in assisting the general education teacher in the delivery of standards-based instruction in content areas.

   [CDE 9.06(3)(a),(3)(b),(3)(c)-(d),(3)(f),(4)(b),(4)(c)(ii)-(iv), (4)(e),(5)(c)-(c)(ii), (5)(e), (5)(g), (5)(h),(5)(i)(ii),(6)(b)(i),(6)(c), (7)(a)-(c)]

   [CEC GC3K1, GC4K1, GC4K3, GC4K5, GC4K7, GC4S1-7, GC4S10-13, GC5S3, GCV6S1, GC6S5, GC7S2-4, GC8S3, GC8S5GC10S2]

   [CRD 5.01, 5.01.1, 5.01.3, 5.01.5]

3. To prepare teachers to be knowledgeable about student literacy development in reading, writing, speaking, viewing and listening.

   a) Use formal and informal assessment to plan and organize literacy instruction according to student unique needs including interventions that foster reading comprehension based in research-based models, approaches, and practices.

   b) Describe skills that promote understanding of strategies that improve student listening and reading comprehension for a variety of genre.

   c) Practice and display skills that foster student ability of reading fluency and comprehension across content areas.

   [CRD 5.01, 5.01.1, 5.01.3, 5.01.5]
F. CONTENT OF THE COURSE:
Content will be delivered through lecture, discussion, text readings, field-experiences, simulations, product analysis, videos, demonstration/practice, and case studies.

1. Mathematics: Instruction and Assessment
   - Colorado Model Content Standards-Mathematics
   - Whole numbers: Operations and properties
   - Mental, electronic and written whole number computation
   - Number theory
   - Fractions
   - Decimals, ratio, proportion, and percent
   - Use and conceptual understanding of integers
   - Rational numbers, real numbers, and algebra
   - Statistics (organizing, picturing, analyzing, and graphing information)
   - Probability, simple, and complex experiments
   - Geometric shapes
   - Measurement
   - Geometry using triangle congruence, similarity, coordinates, and transformations

2. Content Area Learning: Instruction and Adaptations
   - Colorado Model Content Standards (Colorado State Department of Education website)
   - Content area vocabulary instruction (in class, online, and in textbooks)
   - Cognitive and metacognitive strategy instruction (in class, online, and in textbooks)
   - Collaborative Strategic Reading (in class and online)
   - Graphic organizers, Curriculum mapping (online)
   - Adapting textbook reading and assignments (online)
   - Content Enhancement Routines
   - Technology and adaptive uses (high technology {e.g., computer software, robotics}, to low technology {e.g., a whiteboard, pencil, pen}), assistive device (e.g., a piece of equipment which supports access to the curriculum such as a wheelchair), and mathematical device (e.g., a piece of equipment that provides the mathematical calculations such as the most obvious and least creative—a calculator).
   - Constructing and adapting tests (in class, online, and in textbooks)
G. COURSE REQUIREMENTS:

1. Article reviews (2)
This assignment will highlight two articles from professional journals. The articles should address the following topics: theory, strategy use, and methodology. Of the two articles, one (1) should be a research study from your professional journals and should depict best practices with evidence of effectiveness for a math strategy. The second article should explain the foundational principles of a reading strategy or methodology that you can apply to your daily teaching.

[CDE 9.06 (1)(f)]

[CEC GC4K1, K3, K5, K6; CC7K1, K2; CC9K4; CC9S11]
[CRD 5.01, 5.01.3, 5.01.5]

2. Content Adaptations Training Module Project
Using one of the articles you chose for your article reviews, create a training module for a general educator. You must create the module using PowerPoint (or similar software). Include an accompanying written explanation of the training with the module.

You will design this module so that a general educator can use it to understand how to use the technique in their general education classroom with the students who have the Generalist categories of special education needs. Use the grading rubric to guide you in your assignment completion. See the assignment description and rubric on the UNC Blackboard site for details.

[CEC GC3K1, GC4K3, K5; GC4S1, S2, S3, S4, S6, S7, S11, S12, S15; GC5S3; GC6S1; GC7S2, S3; GC8S3, S5; GC10S2; CC7K4, K5; CC7S1, S10, S11; CC9S11; CC10K1; CC10S8, S9] [CRD 5.01, 5.01.1, 5.01.3, 5.01.5]

Identify a learner
It is important that you identify a learner with whom you can work during this semester. Do this right away. Several major assignments depend on you working with a learner that you identify. Optimally, the learner you work with would be an individual with a Generalist disability (not blind or deaf). You will want to find out if you can access his/her IEP and/or learning records. (Use the parent consent form.) Age and grade level are not important. Choose someone that most closely matches the student population you teach or plan to teach. You may need to get a bit creative. Identify a learner that will best help you meet the course requirements. Try to choose a young person (neighbor, friend, relative, etc.) that may have some difficulty learning math. Try…If you need to find someone that barely meets the requirement…okay. This is your
education, so do try your best to identify a learner with math difficulties that will help forward your education.

3. DAS/MIP

You will assess the understanding and skills in number and operations concepts and applications of a student with generalist disabilities using the student’s records, interviews with the student and his/her teacher(s), formal assessment information, IEP, informal assessments given in class. You will also want to use informal assessment as discussed in the course and in your texts to document you hypothesized mathematics error(s) (the assessment form you would use to gather this data together is found in the Sherman text.) Based on the DAS you complete, you will design 1 MIP. You will write this MIP focused on one student for whom you did the DAS. Document how you will track the student’s learning through work products.

4. Mathematics Lesson Plan Project

Based on the assessment that you performed in #3 (include your assessment with this assignment as well as any corrections you needed to make), design and deliver five lesson plans. You may teach these lessons to a group (2 or more) of youth in the general or special education classroom or just to your identified student. In a group, your focus is on the one student for whom you performed the DAS/MIP in assignment #3. That is the student who will be the only one written about in the student guide column of the lesson plan. The lesson plan template is provided for you.

Try to utilize e-manipulatives, software, physical manipulatives, a mathematical device, an assistive device, possibly an integration of a reading model with multiple strategy use (can be the CRS model learned in this class), and integration of life skills. You cannot do all of these in the same lesson. Spread them across the five lessons.

Plot a graph of the student’s growth in learning with documentation. Document the student’s learning through work products (for instance, you could use pre and post work products and daily work samples from the student).

[CDE 9.06(2), (3)(a), (3)(d), (3)(f),(3)(g), (5)(c)(ii),(5)(e), (5)(g),(5)(h), (6)(B)(I), (6)(C), (6)(d)(v),(7)(b)(ii)
[CEC GC4S1, S3, S4, S5, S6, S7, S11, S12; GC6S1, S2, S3; CC7K4; CC7S1, S7, S10, S11; CC8S1, S2, S4, S5, S9; CC9S11; CC10K1; CC10S8, S9]
[CRD 5.01]

5. Class Participation

There are assignments as assigned or needed. You are expected to complete them as directed. We will be doing many activities, readings, responses and discussion during class. There will be models of strategies that can be used with students demonstrated during class. It is important
that you take part in these activities. It is also important to keep up with the schedule and due dates.

H. GRADING CRITERIA:
1. Summaries of articles
   40 points
2. Content Adaptations Training Module Project
   40 points
3. Assessment of Student in Mathematics DAS and MIP (real student)
   40 points
4. Mathematics Lesson Plan Project
   60 points
5. Class Participation/Discussion Board
   250 points
6. Final Examination
   30 points

460 points possible

<table>
<thead>
<tr>
<th>Percentile</th>
<th>Letter Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>95 - 100</td>
<td>A</td>
</tr>
<tr>
<td>93 - 94</td>
<td>A-</td>
</tr>
<tr>
<td>91 - 92</td>
<td>B+</td>
</tr>
<tr>
<td>88 - 90</td>
<td>B</td>
</tr>
<tr>
<td>86 – 87</td>
<td>B-</td>
</tr>
<tr>
<td>84 – 85</td>
<td>C+</td>
</tr>
<tr>
<td>80 – 83</td>
<td>C</td>
</tr>
<tr>
<td>78 – 79</td>
<td>C-</td>
</tr>
<tr>
<td>76 – 77</td>
<td>D+</td>
</tr>
<tr>
<td>72 – 75</td>
<td>D</td>
</tr>
<tr>
<td>70 – 71</td>
<td>D-</td>
</tr>
<tr>
<td>&lt; 70</td>
<td>F</td>
</tr>
</tbody>
</table>
Policy on Incompletes
An “I” is assigned due to unanticipated circumstances the last week of the term that make the student unable to complete course requirements within the allotted time (e.g. he/she missed the final examination due to sickness, an emergency in the family). The instructor must submit to the school director, a written notice of the specific course work to be completed before the final grade is determined, a copy is kept in the school and one is provided to the student. To amend a grade of “I” with an earned grade on a student’s transcript, the student must complete all incomplete course work by the last day of the next semester, including summer term. If the course requirements are not completed within the time limitation and the grade received in the Registrar’s Office, the grade will be recorded on the academic record as a failing or unsatisfactory grade.

Policy on Plagiarism
Plagiarism is the act of appropriating the written, artistic, or musical composition of another, or portions thereof; or the ideas, language, or symbols of same and passing them off as the product of one’s own mind. Plagiarism includes not only the exact duplication of another’s work but also the lifting of a substantial or essential portion thereof (UNC definition).

Regarding written work in particular, direct quotations, statements which are a result of paraphrasing or summarizing the work of another or other information which is not considered common knowledge must be cited or acknowledged, usually in the form of a footnote. Quotation marks or a proper form of indentation shall be used to indicate all direct quotes.

Regarding class projects, you are not to use as your entire presentation the complete works of faculty members, full imported websites, or any other body of work in which you are not the author. Of course, with proper referencing, you can import portions of such works and websites to enhance and illustrate your presentation, and you can provide references to these other works for students who have an interest in pursuing a topic further.

Policy on Originality of Products
You are encouraged to build on your own previous work from other classes and programs, and to integrate material and ideas that you have learned in other classes into this class, with appropriate referencing, but projects from other classes are not to be duplicated and turned in to fulfill EDSE 617 requirements, nor can you take work that you completed in another class and simply reconfigure it, or enhance it, for this class. In other words, you are expected to do original work for each project and assignment that you complete in this class.

I. REQUIRED READINGS
J. RECOMMENDED RESOURCES

Colorado Department of Education Content Standards. See CDE website for download information.


K. Accommodation Statement

Students who believe that they may need accommodations in this class are encouraged to contact the Disability Support Services, voice/TTY (970) 351-2289 or fax (970) 351-4166, or visit www.unco.edu/dss as soon as possible to ensure that accommodations are implemented in a timely fashion.

Websites

Colorado Department of Education: www.cde.state.co.us
National Council of Teachers of Mathematics: www.nctm.org
NCTM Illuminations: www.illuminations.nctm.org
National Library Virtual Math Manipulatives: www.matti.usu.edu
The Wonders of Physics: http://sprott.physics.wisc.edu/wop.html
Classroom Compass: http://www.sedl.org/pubs/classroom-compass/
Cradleboard Native project: http://cradleboard.org/main.html
Funtraps: http://home.flash.net/~funtraps/
School for Champions: http://www.school-for-champions.com/science.htm
Galileo and Motion: http://sps.nus.edu.sg/~cheongsa/page8b.html
Fermilab: Discovering the Nature of Nature http://www.fnal.gov/