REQUEST TO OFFER

A BACCALAUREATE DEGREE

IN

MATHEMATICS EDUCATION
Program Description

Given the pervasive use of mathematics in all sectors of the economy, a degree in Mathematics Education provides the student with the capability required to pursue a wide variety of interesting, challenging, and rewarding careers.

Employment prospects are excellent for mathematics education degree students. A critical shortage of math teachers exists throughout the nation, creating increasing demand for new instructors.

The Mathematics Education degree will require students to complete a set of rigorous core courses which will provide graduates with a foundation of the fundamental areas of calculus, linear algebra, Euclidean/Non-Euclidean geometry, analysis, number theory, probability, and statistics. The Math Education degree requires the completion of at least 120 semester credits, including at least 25 credits of general education and 36 secondary education credits. Graduates of the Math Education program will be prepared to enter the teaching profession at the secondary level and/or pursue further graduate studies in education.

All content courses in the Mathematics Education program will be taught by faculty members of the Department of Mathematics, several of whom have terminal degrees and several of whom have experience teaching math at the secondary level. The main goal of the program is to rigorously prepare the best-qualified secondary math teachers who can demonstrate, by passing the required PRAXIS exams, that they know the subject material and can effectively instruct and motivate their students in grades 6-12.

Recognizing the needs for coordination between the mathematics content area and secondary education certification, DSC anticipates several interlocking connections. One of the standing committees at DSC is the Professional Education Committee, which is chaired by Dr. John Goldhardt. This committee consists of secondary education faculty and content faculty who jointly oversee the integration of these interlocking degrees. Among the areas the committee manages are:

1. Advising of students by both content area faculty and secondary education faculty to ensure that students do not receive conflicting advice.
2. Ensuring that students in all content areas are scheduled, at the appropriate time, to take the correct PRAXIS II subject test for their content area.
3. Oversight of the math content methods course to ensure that students receive the best pedagogical preparation for teaching their content area.
4. Oversight of the interface between secondary education courses and mathematics content coursework to be sure that students minimize their time to graduation and certification. Special care will be taken to ensure that students coordinate degree completion and student teaching requirements while they are eligible for financial aid.
5. Other areas necessary for the smooth operation of these integrated area.
Purpose of Degree

One of the central roles assigned to DSC is to meet the educational needs of Washington and Kane counties. Given the rapid growth of the area and the infusion of public school-aged children, combined with retirements projected in the Washington County School District, the need for public school teachers is critical and growing. Mathematics, throughout the county, state, and nation, is a significant need in secondary education.

The purpose of a Bachelor of Science degree in Math Ed, complying with the USOE endorsement requirements for Mathematics Secondary Education, is to provide graduates with a more versatile career path as secondary education mathematics teachers. A report addressing teacher shortage was submitted to Utah’s K-16 Alliance from its Special Task Force on Teacher Shortages in March 2007 entitled, “An Education Initiative for the State of Utah.” The Executive Summary of this report recommended that “Public Colleges . . . within the State should be provided enhanced capacity to produce additional teachers in selective programs. In 2006, a majority of Utah public school districts reported extreme or serious difficulty in recruiting and hiring teachers in the fields of secondary mathematics.”

The requested degree addresses the high-demand statewide need for secondary mathematics teachers, as well as a critical local need. The expected outcome is that highly-qualified secondary mathematics teachers will be produced, thereby alleviating some of the shortages occurring now and projected to occur in the future based on retirement and teacher turnover.

The proposed degree is targeted toward new freshmen students at Dixie State College who declare a secondary education major and who wish to teach mathematics, current teachers in the WCSD and outlying areas such as Kanab who need additional courses to meet USOE endorsement requirements, and individuals having baccalaureate degrees and higher who have relocated to Washington County and who wish to meet the requirements for secondary teacher licensure in the State of Utah.

Institutional Readiness

With steady and sustained development as a baccalaureate institution, DSC’s infrastructure and institutional environment are now fully ready to respond to Southern Utah’s demand for more varied degrees. The institution has devoted resources and attention to developing student services and library services. Dixie State College now has a decade of experience as a baccalaureate institution, and it boasts an infrastructure and institutional environment appropriate for its role. Thoughtful and sustained attention to seeking and retaining credentialed teaching faculty, developing student services and library and technological resources, and funding facilities expansion have poised the institution to successfully add the proposed degree.

Within the Department of Mathematics, upper-division courses have been offered each semester for the past several years. Enrollment has increased dramatically since the first offerings. For example, Linear Algebra increased from 10 in Fall 2006 to 22 in Fall 2009; Euclidean/Non-
Euclidian Geometry increased from 3 in Fall 2006 to 14 in Spring 2010. The total number of upper-division students increased from 9 (Spring 2007) to 43 (Spring 2010).

While some of the department faculty have terminal degrees and are qualified to teach upper-division courses, other members of the department are experienced in teaching the lower-division mathematics courses which are required for general education.

**Faculty**

The mathematics faculty at DSC is composed of qualified, experience and diverse professors. At this time, no new faculty members will need to be added to serve the Mathematics Education degree. As the program grows, additional faculty may be needed to accommodate growth. See Appendix A for the list of current faculty (full-time and adjunct) and the background and qualifications of each.

**Staff**

The Mathematics Department at Dixie State College currently functions with one .74-time secretary and one work-study student, which is sufficient at this time. Currently, the department has a lecturer (60%)/advisor (40%). As the program grows, additional advising personnel will be added.

**Program Need**

The Mathematics Education emphasis is a “foundational” degree that is almost universally offered at baccalaureate institutions granting secondary licensure. Secondary institutions throughout Washington County, the State of Utah, and the nation are constantly seeking secondary mathematics faculty. Students at Dixie State College should have this degree option available to them.

In August 2007, the Deseret News reported that:

Utah’s student enrollment is expected to grow from 540,000 to more than 680,000 students by 2014. At the same time, Utah will need 44,000 new teachers, according to a Utah Educator Supply and Demand study by Utah State University.

Yet fewer people want to become teachers. The number of new teachers graduating from Utah colleges and universities dropped 13 percent between 2003 and 2006, the Utah Foundation reports.

And about half of those who do become teachers quit within the first five years. Of Utah’s some 9,000 new teachers licensed between 2000 and 2004, fewer than half remain in Utah public schools by the 2005-05 school year, the supply and demand study states.
It was reported that in 2007 the state of Utah needed as many as 100 new math and science teachers, but was only able to attract six qualified candidates.

Labor Market Demand

The Mathematics Education degree prepares students to work toward a specific career, that of a mathematics teacher. Demand for mathematics educators is brisk, both regionally and nationally. In fact, the regional demand for secondary teachers is such that the Washington County School District included mathematics as one of four specially requested degrees. (See letter from WCSD.) Given the proficiency requirements in Utah high schools in mathematics, such needs will continue to be reflected in the years ahead.

Because of ongoing student interest in educational careers at most state colleges and universities, Colleges of Education have an institution’s largest number of annual graduates. Data from a joint survey conducted by Dixie State College and the Washington County School District in the spring of 2006 indicates a respectable population in the County that is interested in pursuing a degree in education. Many in this population already possess a baccalaureate degree and desire secondary licensure. Because of the current market demand for math educators, it is anticipated that many of DSC’s current students will move toward the Math Education degree. In addition to current and future DSC students, approximately half of the Washington County School District teachers with mathematics endorsements have Level 2 or Level 3. Several of those would be eager to gain a Level 4 endorsement.

Benefits

Baccalaureate completion rates in Utah are declining, and one probable contributor is access. While associate degree attainment in Washington County is strong (38% compared to 17.7% for the state), baccalaureate attainment for the 25- to 34-year-olds is almost reversed (17.4% in Washington County compared to 25.4% for the state). (DSC Environmental Background)

Complex issues have complex answers but at least one contributing factor is that DSC has provided only associate degrees for most of its history and still offers only a few baccalaureate degrees. The proposed degree in Mathematics Education should contribute to reversing this trend. More importantly, it will assist in the burden placed on USHE to provide the teachers needed in the State of Utah.
Consistency with Institutional Mission

The proposed degrees in Mathematics Education are in keeping with DSC’s mission to offer baccalaureate programs in “core or foundational areas.” Additionally, secondary education is currently DSC’s primary priority (which includes Secondary Education Certification and the two degrees of English and Biology Education). Also, DSC was recently given the green light by the Regents to offer a secondary education (SET) licensure program in the emphases of biology, English education, and integrated science.

Program Assessment

Each department at DSC goes through a program review prescribed in policy. This review includes assessment of facilities, teaching resources, curricular design, and academic achievement of learning objectives. Each department is reviewed on a five-year rotation, and the Mathematics Department is due for review in 2014. At that time, the baccalaureate program will be examined as per the program review policy.

Expected Standards of Performance

Central to this degree proposal is a commitment to student assessment and, ultimately, to the production of quality graduates. Graduates of the Mathematics Education program will receive the training necessary to apply for Level 4 endorsement in mathematics so that they can teach any and all high school mathematics courses offered in the State of Utah.

Mathematics Education graduates must complete 48 credits of coursework directly related to knowledge of the field, an additional 39 credits specifically designed to prepare them for careers in secondary schools, and a 5-credit calculus-based physics course to provide applied knowledge of mathematics. In addition, graduates must pass the PRAXIS II examination in Mathematics Content Knowledge (Test #0061).

Mathematics graduates must complete 45 credits of coursework directly related to mathematics knowledge and a 10-credit calculus-based physics sequence.

Each course in the curriculum will have identified learning outcomes that must be achieved upon completion of the course. The ability to formulate mathematical proofs is one learning outcome in all courses numbered above 3000, as this is a necessary skill for graduate work in mathematics. Also, each course numbered above 3000 will be structured so as to provide Mathematics Education students will the essential content knowledge needed to pass the PRAXIS II exam. Sample PRAXIS II exam problems or their equivalents will be included on each final examination in these courses.
APPENDICES

A:  Mathematics Faculty (full-time and adjunct)

B:  Required Courses for the Mathematics Education Degree and for Mathematics Endorsement

C:  Course Descriptions

D:  Library and Information Resources
APPENDIX A: MATHEMATICS FACULTY
# Scott L. Mortensen

143 South Main, St. George, UT, 84770  
(435) 652-7764  
mortense@dixie.edu

## EDUCATION

<table>
<thead>
<tr>
<th>University</th>
<th>Degree</th>
<th>Year</th>
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<tbody>
<tr>
<td>Utah State University, Logan, UT</td>
<td>M. Ed.</td>
<td>1991</td>
</tr>
<tr>
<td>Masters Project: Handbook on using the TI-81 Graphing Calculator</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Utah State University, Logan, UT</td>
<td>B.S. in Secondary Education</td>
<td>1979</td>
</tr>
<tr>
<td>Major in Mathematics, Minor in P.E. Coaching</td>
<td></td>
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</tr>
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## TEACHING EXPERIENCE

<table>
<thead>
<tr>
<th>Institution</th>
<th>Title</th>
<th>Years</th>
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<tbody>
<tr>
<td>Dixie State College, St. George, UT</td>
<td>Associate Professor, Mathematics Chair</td>
<td>1988-Present, 2005-Present</td>
</tr>
<tr>
<td>Morgan High School, Morgan, UT</td>
<td>Mathematics Teacher</td>
<td>1982-1987</td>
</tr>
<tr>
<td>Dixie Junior High School, St. George, UT</td>
<td>Mathematics Teacher</td>
<td>1979-1982</td>
</tr>
<tr>
<td></td>
<td>Classes Taught: 7th and 8th Grade Math, PreAlgebra, Elementary Algebra</td>
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</tr>
</tbody>
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## RELATED EXPERIENCE

<table>
<thead>
<tr>
<th>Institution</th>
<th>Title</th>
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<tbody>
<tr>
<td></td>
<td>Provided support for engineers in their work.</td>
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## PUBLICATIONS/PAPERS/PRESENTATIONS

<table>
<thead>
<tr>
<th>Title</th>
<th>Year</th>
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<tbody>
<tr>
<td>“TI-81 Calculator Handbook”</td>
<td>1991</td>
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<tr>
<td>“TI-85 Calculator Handbook”</td>
<td>1993</td>
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## MEMBERSHIPS

<table>
<thead>
<tr>
<th>Organization</th>
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<tbody>
<tr>
<td>American Math Association of Two Year Colleges</td>
<td>1991-Present</td>
</tr>
<tr>
<td>Utah Math Association of Two Year Colleges</td>
<td>1991-Present</td>
</tr>
<tr>
<td></td>
<td>President for two years</td>
</tr>
</tbody>
</table>
Clare Banks
225 South 700 East, St. George, Utah 84770
banks@dixie.edu

EDUCATION

University of Northern Colorado, Greeley, CO
Ph.D. in Mathematics Education 2005
Minor: Statistics
Dissertation: “Preservice Teacher’s Personal Epistemological Beliefs in Relation to Their Beliefs In the National Council of Teachers of Mathematics’ Principles and Standards for School Mathematics.

Brigham Young University, Provo, UT
M.A. in Mathematics 1997
Thesis: “How Some Math Teachers are Integrating the Internet Into their Current Curriculum: A case study”

Southern Utah University, Cedar City, UT
B.S. Mathematics 1995
Minor: Business Education, Secondary Education
Certificate to teach mathematics, computer applications, and Chinese

Brigham Young University-Hawaii, Laie, HI
B.S. Office Management 1984
Minor: Business Teaching

TEACHING EXPERIENCE

Dixie State College, St. George, UT
Associate Professor – Mathematics 2005-Present
Teach Probability and Statistics, Algebra, Trigonometry, Calculus, Mathematics for Elementary School Teachers, Methods of Teaching Secondary School Mathematics

University of Northern Colorado, Greeley, CO
Teaching Assistant 2001-2005

Utah Valley State College, Orem, UT
Adjunct Instructor 1999 - 2000

Lincoln American School, Taichung, Taiwan
High School Teacher 1998-1999
Taught AP Statistics, Computer Applications, and C++ Programming

PUBLICATIONS/PAPERS/PRESENTATIONS


Banks, C. (April, 2005). A Comparison of Mathematics Teachers’ Preparation Requirements in
the U.S. and some Countries in Europe and Asia. MAA Rocky Mountain. Greeley, CO


Hauk, S., Judd, A., Banks, C., & Tsay, J (January 2002). Qualitative Case-study of a Research Mathematician Teaching College Algebra. Young Mathematician’s Network/Project Next Poster Session, Joint Mathematics Meetings, San Diego, CA.

MEMBERSHIPS

- American Mathematical Association of Two-Year Colleges
- Utah Mathematical Association of Two-Year Colleges
- National Council of Teachers of Mathematics
- Research Council on Mathematical Learning
- Utah Association of Mathematics Teacher Educators
- Utah Council of Teachers of Mathematics
- Society for Information Technology & Teacher Education
- MAA Rocky Mountain Region
- International Society for Technology in Education

SERVICE IN PROFESSIONAL SOCIETIES

- President, Utah Mathematical Association of Two-Year Colleges (2009-2010)
- Teacher Preparation Committee, American Mathematical Association of Two-Year Colleges (2008-present)
- Secretary, Utah Association of Mathematics Teacher Educations (2007-2008)
- Volunteer, National Council of Teachers of Mathematics (2008)
- Volunteer, MAA Rocky Mountain
Costel Ionita  
1305 E Riverside Dr. #14, Saint George, UT 84790  
435-652-7805  
ionita@dixie.edu

EDUCATION  

*Louisiana State University, Baton Rouge, LA*  
**Ph.D. in Mathematics**  
Dissertation: "Signs of Units in Quadratic Extensions"  
2004

*Louisiana State University, Baton Rouge, LA*  
**M.S. in Mathematics**  
2002

*University of Bucharest, Bucharest, Romania*  
**B.S. in Mathematics**  
Areas of Concentration: Mathematics  
Honors Thesis: "q-Series"  
1995

AWARDS  

Graduate School Enhancement Award, Louisiana State University  
2000 – 2004

TEACHING EXPERIENCE  

*Dixie State College, Saint George, UT*  
**Assistant Professor of Mathematics**, Tenure Track  
I have taught Intermediate Algebra (MATH 1010), College Algebra (MATH 1050), Pre-Calculus (MATH 1065), Calculus I (MATH 1210), Calculus II (MATH 1220), Multivariable Calculus (MATH 2210), Linear Algebra (MATH 2270), and Differential Equations (MATH 2280).

I have created and developed the syllabus for Discrete Mathematics (MATH 2200), Euclidean and Non-Euclidean Geometries (MATH 3100), Foundations of Analysis (MATH 3200), and Foundations of Algebra (MATH 4000).

*Hiram College, Hiram, OH*  
**Assistant Professor Of Mathematics**, Tenure Track  
2004-2006  
I have taught College Algebra, Calculus I, Calculus II, Multivariable Calculus, Linear Algebra, and Differential Equations.

*Louisiana State University, Baton Rouge, LA*  
**Graduate Teaching Assistant**  
2000-2004  
I have taught College Algebra, Business Calculus, Calculus I, and Calculus II.

*V. Harnaj High School, Bucharest, Romania*  
**Mathematics Teacher**  
1995-2000

PUBLICATIONS/PAPERS/PRESENTATIONS  


MEMBERSHIPS  

American Mathematical Association of Two Years Colleges (AMATYC)  
Mathematical Association of America (MAA)
Jie Liu
2550 East 750 North
St. George, UT  847790
(435)652-7983
Liu@dixie.edu

EDUCATION

The University of Texas at Arlington, Arlington, TX
Ph.D. in Mathematics 2006
Dissertation: “New Developments of Deformation Method”

The University of Texas at Arlington, Arlington, TX
M.S. in Mathematics 2002

The University of Texas at Arlington, Arlington, TX
B.S. in Physics 1994

AWARDS

Outstanding Graduate Student Teaching Award - Dept. of Mathematics, The University of Texas at Arlington, Arlington, TX 2000-2001

TEACHING EXPERIENCE

Dixie State College, Saint George, UT
Assistant Professor of Mathematics, Tenure Track 2006 - present
Taught Intermediate Algebra (MATH 1010) and College Algebra/Pre Calculus (Math 1050).
Taught and developed syllabus and overall course structure for Intro to Statistics (Math 1040), Trigonometry (Math 1060), Business Calculus (Math 1100), Calculus Series (Math 1210, 1220, 2210), Linear Algebra (Math 2270), and Intro to Differential Equations (Math 2280)

The University of Texas at Arlington, Arlington, TX
Adjunct Faculty of Mathematics 2004-2006
Taught undergraduate math courses from Pre-Algebra through Calculus: College Algebra, Trigonometry, and Pre-Calculus.

The University of Texas at Arlington, Arlington, TX
Graduate Teaching Assistant 1998-2004
Taught two undergraduate math courses each semester and assisted professors with undergraduate and graduate courses by grading, running the computer lab, and managing problem sessions

Huxin High School, Shanghai, China
Full Time Teacher in Physics 1994-1998
Taught high school physics and science classes

Outstanding English School, Shanghai, China
Part Time Teacher in English 1995-1997
Taught English for kids ranging from age 3 to 15

PUBLICATIONS/PAPERS/PRESENTATIONS


MEMBERSHIPS

American Mathematical Association of Two Years Colleges (AMATYC)
Mathematical Association of America (MAA)
National Council of Teachers of Mathematics
Taylor A. Jensen  
710 S. Indian Hills Dr. #32, St. George, UT 84770  
(435) 628-7020  
jensen@dixie.edu

### EDUCATION

<table>
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<tr>
<th>Institution</th>
<th>Degree</th>
<th>Year</th>
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<tbody>
<tr>
<td>Montana State University, Bozeman, MT</td>
<td>Ph.D. in Mathematics Education</td>
<td>2009</td>
<td>Dissertation: “A Study of the Relationship between Introductory Calculus Students’ Understanding of Function and Their Understanding of Limit”</td>
</tr>
<tr>
<td>Utah State University, Logan, UT</td>
<td>M.S. in Mathematics</td>
<td>2003</td>
<td>General GRE scores: 780 Quantitative, 780 Analytical</td>
</tr>
</tbody>
</table>
| Utah State University, Logan, UT             | B.S. in Mathematics & Statistics | 2001 | Minor: Spanish  
Outstanding Scholastic Achievement award, 2001, Mathematics & Statistics Department  
Golden Key National Honor Society |

### AWARDS

<table>
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<tr>
<th>Award</th>
<th>Year</th>
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<tr>
<td>Received special recognition from Dixie State College’s Disability Resource Center for “extra effort in helping us level the academic playing field for our students with learning differences and other disabilities.”</td>
<td>Feb. 2009</td>
</tr>
<tr>
<td>Graduated Summa Cum Laude from Utah State University (twice)</td>
<td>2001 and 2003</td>
</tr>
<tr>
<td>Graduated as Co-Valedictorian from Great Falls High School, Great Falls, MT</td>
<td>May 1995</td>
</tr>
<tr>
<td>Earned music awards while at Great Falls High School, including:</td>
<td>1994 - 1995</td>
</tr>
<tr>
<td>• Principal chair bassoonist, All-State Orchestra (1995)</td>
<td></td>
</tr>
<tr>
<td>• All-State Band (1994)</td>
<td></td>
</tr>
<tr>
<td>• All-Northwest Choir (1994 and 1995)</td>
<td></td>
</tr>
<tr>
<td>Became an Eagle Scout</td>
<td>Jan. 1993</td>
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### TEACHING EXPERIENCE

<table>
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<tr>
<th>Institution</th>
<th>Role</th>
<th>Years</th>
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<tr>
<td>Dixie State College of Utah, St. George, UT</td>
<td>Tenure-Track Instructor</td>
<td>2008 - present</td>
</tr>
<tr>
<td>Montana State University, Bozeman, MT</td>
<td>Graduate Teaching Assistant</td>
<td>2004 - 2008</td>
</tr>
<tr>
<td>Brigham Young University–Idaho, Rexburg, ID</td>
<td>Lecturer</td>
<td>2003 - 2004</td>
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</tbody>
</table>
Taught five sections of mathematics in the fall and spring in the following courses: Quantitative Reasoning, College Algebra, and Statistics (introductory course); taught two more sections of College Algebra in the summer.

*Utah State University, Logan, UT*

**Graduate Teaching Assistant** 2001 - 2003

Taught one mathematics course per semester at USU (including summers), including Intermediate Algebra, College Algebra, and Calculus Techniques (for business majors); similar responsibilities to teaching position at Montana State University.

**PUBLICATIONS/PAPERS/PRESENTATIONS**

- “Preservice Elementary Teachers’ Attitudes toward Mathematics in Comparison to Those of College Algebra and College Calculus Students”
  Paper presented at Twenty-fifth Annual Conference of the Northern Rocky Mountain Educational Research Association in Jackson, Wyoming, October 2007

- “An Examination of Two Major Sources of Preservice Elementary Teachers’ Attitudes toward Mathematics: The Roles of People and of Perceptions of Math”
  Paper presented at Twenty-fifth Annual Conference of the Northern Rocky Mountain Educational Research Association in Jackson, Wyoming, October 2007

**MEMBERSHIPS**

- American Mathematical Association of Two-year Colleges
- Utah Association of Mathematics Teacher Educators
- Service Learning Committee at Dixie State College
Lynn R. Hunt
1242 Chokeberry Dr.   St. George, Utah  84790
435-652-7762
hunt_L@dixie.edu

EDUCATION

Oregon State University, Corvallis, Oregon
Master of Science  1984
Major: Mathematics and Computer Education

Utah State University, Logan, Utah
B. S. in Science  1973
Major: Composite in Mathematics-Computer Science-Applied Statistics

Brigham Young University, Provo, Utah
Attended Three Semesters  1970-1971

AWARDS

Outstanding Teacher of the Year for Dixie State  (Twice)  1989,1996
Finalist for Outstanding Teacher of the Year 8 times  1996
State Focus on Excellence award

TEACHING EXPERIENCE

Dixie State College, Saint George, UT
Associate Professor of Mathematics  1985 - present
I have taught Intermediate Algebra (MATH 1010), College Algebra (MATH 1050), Trigonometry (MATH 1060), Business Calculus (MATH 1100), Calculus I (MATH 1210), Calculus II (MATH 1220), and Multivariable Calculus (MATH 2210

Helped implement the use of calculators and technology in the classroom. Developed and taught a class on the use of calculators.

Rigby High School, Rigby, Idaho
Math Instructor  1973-1985

MEMBERSHIPS

American Mathematical Association of Two Years Colleges (AMATYC)
Ross Decker  
Dixie State College of Utah  
456 N. 2110 East Circle  
St. George, UT  84790  
(435) 862-0688  
decker@dixie.edu

EDUCATION

- *Brigham Young University, Provo, UT*
  - M.S. in Math Education  
  - 1994

- *Arizona State University, Tempe, AZ*
  - B.S. in Math Education  
  - 1997

AWARDS/ACHIEVEMENTS

- Nomination for "Outstanding Teacher of the Year", *Dixie State College*  

- "Outstanding Teacher of the Year", *Dixie State College, St. George, UT*  
  - 2002

- Listed in "Who's Who Among America's Teachers"  

- "Spirit of Dixie Award" 3 times, *Dixie State College, St. George, UT*  

- National Award Winner of the United States Achievement Academy  
  - 1994

- AP Calculus Score of "5"  
  - 1977

- Perfect Score of "36" on the Math Portion of the ACT  
  - 1977

- National Merit Semifinalist  
  - 1976

TEACHING EXPERIENCE

- *Dixie State College of Utah, St. George, UT*
  - Associate Professor of Mathematics  
  - 2006-Present

- Assistant Professor of Mathematics  
  - 2003-2006

- Instructor of Mathematics  
  - 1998-2003
  
  - Instruction of the following courses: MATH 1010, 1030, 1040, 1050, 1060, 1080, 1090, 1100, 1210, 1220, 2210, 2270, 2280, 2983, 2989, 3310

- *Mesa Community College, Mesa, AZ*
  - Adjunct Instructor of Mathematics  
  - 1996-1998

  - College Algebra, College Mathematics, Intermediate Algebra

- *Rio Salado Community College, Tempe, AZ*
  - Instructor of Mathematics  
  - 1995-1997

  - Calculus 1, Calculus 2, College Algebra, Finite Mathematics, Trigonometry, Mathematical Concepts

- *Red Mountain High School, Mesa, AZ*
  - Teacher - Mathematics  
  - 1988-1998

  - Calculus 1, Calculus 2, Pre-Calculus, Geometry, Consumer Math

- *Westwood High School, Mesa, AZ*
  - Teacher - Mathematics  
  - 1986-1988

  - Pre-Calculus, Algebra 1, Algebra 2, Geometry, Consumer Math

- *Arizona State University, Tempe, AZ*
  - Teacher - Mathematics  
  - 1986-1988

  - Center for Academic Precocity

- *Apollo High School, Glendale, AZ*
  - Teacher - Mathematics  
  - 1987-1988

  - Pre-Calculus, Algebra 2, Algebra 1, Basic Algebra
RELATED EXPERIENCE

Lucerne Publishing, Raleigh, NC
Editor 1995 - Present
Provide as needed editorial support remotely, including developmental and copy editing of their internal online and printed documentation.

Wide World Importers, Durham, NC
Researcher 1995 - Present
Compile reports, including statistical and market trends, to track the growth of online shipping sales versus the primary offline practices.

Fabrikam, Inc., Raleigh, NC
Language Consultant 1999
Translated American-English external web site content to French.

Trey Research, Raleigh, NC
User Interface Design Consultant 1998
Provided content design feedback to program managers to create accessible segue between English and French versions of related content.

MEMBERSHIPS

American Mathematical Association of Two-Year Colleges (AMATYC)
Mathematical Association of America
National Council of Teachers of Mathematics
Barbara Blythin
2309 East 550 North
St. George, UT  84790
(435)652-7765
Blythin@dixie.edu

EDUCATION

University of Nevada, Las Vegas
M.S. in Mathematical Sciences 1989

University of Nevada, Las Vegas
B.A. in Speech 1971

AWARDS

Consolidated Students of the University of Nevada Faculty Excellence Award
College of Student Development 1996
College of Science and Mathematics 1994

Barrick Graduate Fellowship, University of Nevada, Las Vegas 1987-1988

Phi Kappa Phi National Honor Society
College of Science, Mathematics and Engineering 1986
College of Arts and Letters 1971

TEACHING EXPERIENCE

Dixie State College of Utah
Assistant Professor 2006- Present
Instructor 2000- 2006

Community College of Southern Nevada
Adjunct 2000

University of Nevada, Las Vegas
Lecturer 1989- 1999
Gordon A. Russell  
981 No. 2500 W. Hurricane, UT 84737  
435-635-9314  
russell@dixie.edu

EDUCATION

Utah State University, Logan, Utah  
M. Ed. In Mathematics Education  
1979

Utah State University, Logan, Utah  
B.S. Math Education  
Areas of Concentration: Mathematics  
Minor: Psychology  
Major: Mathematics Education  
1963

AWARDS

"Teacher of The Year" at Dixie State College of Utah  
2005
"Teacher of The Year" at Weber State University  
1995
"Most Influential Teacher Award" Weber State University  
1986,1987
"Presidential Award for Excellence in Math & Science Teaching"  
1985
"Meritorious High School Teaching Award" in Utah  
1984
"Teacher of The Year" Weber County School District  
1969, 1981

TEACHING EXPERIENCE

Dixie State College of Utah, St. George, UT  
Assistant Prof. – “Mathematics.”  
1997-Present
Weber State University, Ogden, UT  
Adjunct Instructor – “Mathematics.”  
1988-1996
Roy High School, Roy, UT  
Instructor and Director in Mathematics  
1979 - 1992
   Developed programs and coordinated the Mathematics curriculum for the school district while teaching full time and directing the student activities with the student officers.
T.H. Bell Jr. High School in Washington Terrace, Utah  
Instructor – in Mathematics and Psychology  
1963-1979

PUBLICATIONS/PAPERS/PRESENTATIONS

“Metric and English Conversions”  
Helped develop a manual and train teachers to use English/Metric conversions
Opining Institute Presenter/Speaker in Weber County School District (Two Years)  
(Motivational Speeches)

MEMBERSHIPS

National Council of Teachers of Mathematics
AMATYC (American Mathematics Association of Two Year Colleges)
**Violeta A. Ionita**  
1305 E Riverside Dr. #14, Saint George, UT 84790  
435-879-4260  
aionita@dixie.edu  

**EDUCATION**  

<table>
<thead>
<tr>
<th>Institution</th>
<th>Degree</th>
<th>Year</th>
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<tbody>
<tr>
<td>Louisiana State University, Baton Rouge, LA</td>
<td>M.S. in Mathematics</td>
<td>2002</td>
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<tr>
<td>University of Bucharest, Bucharest, Romania</td>
<td>B.S. in Mathematics</td>
<td>1995</td>
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<td></td>
<td>Areas of Concentration: Mathematics</td>
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<tr>
<td></td>
<td>Honors Thesis: &quot;Non-Euclidean Trigonometry&quot;</td>
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**TEACHING EXPERIENCE**  

<table>
<thead>
<tr>
<th>Institution</th>
<th>Role</th>
<th>Years</th>
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<tbody>
<tr>
<td>Dixie State College, Saint George, UT</td>
<td>Lecturer</td>
<td>2006 - present</td>
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<tr>
<td></td>
<td></td>
<td>I have taught Basic Math/Pre-Algebra (MATH0920), Elementary Algebra (MATH0990), Intermediate Algebra (MATH 1010), College Algebra (MATH 1050), and Business Calculus (MATH1100).</td>
</tr>
<tr>
<td>Kent State University, Kent, OH</td>
<td>Adjunct Instructor</td>
<td>2004-2006</td>
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<tr>
<td></td>
<td></td>
<td>I have taught Developmental Mathematics and College Algebra.</td>
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<tr>
<td>Louisiana State University, Baton Rouge, LA</td>
<td>Part-time Instructor</td>
<td>2003-2004</td>
</tr>
<tr>
<td></td>
<td></td>
<td>I have taught College Algebra, and Business Calculus.</td>
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<tr>
<td>Louisiana State University, Baton Rouge, LA</td>
<td>Graduate Teaching Assistant</td>
<td>2001-2003</td>
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<tr>
<td></td>
<td></td>
<td>I have taught College Algebra, Trigonometry, and Business Calculus.</td>
</tr>
<tr>
<td>G. Cosbuc Middle School, Bucharest, Romania</td>
<td>Mathematics Teacher</td>
<td>1995-2000</td>
</tr>
</tbody>
</table>
Kathryn Ott  
2247 Pintura Drive, St. George, UT 84790  
435-673-8836  
ott@dixie.edu

EDUCATION

*Brigham Young University*

**M.S. in School Psychology**  
Thesis: “The Effect of First-Grade Teachers on the Later Achievement of Their Students”  
1981

**B.S. in Psychology**  
Minor: English; Extra-major skill: Calculus  
1979

TEACHING EXPERIENCE

*Dixie State College of Utah*

**Lecturer/Advisor**  
Academic advisor for students majoring in Mathematics and Math Education, and Also teaching nine credit hours per academic year.  
2009–Present

*Dixie State College of Utah*

**Adjunct Instructor** – Mathematics Department  
Taught Intermediate Algebra (Math 1010) and Quantitative Reasoning (Math 1030)  
1993–2009

*Mission College (Santa Clara, CA) and West Valley College (Saratoga, CA)*

**Adjunct Instructor** – Psychology Department  
Taught General Psychology and Developmental Psychology courses  
1990–1993

*City College of San Francisco*

**Adjunct Instructor** – Psychology Department  
Taught General Psychology, Personal and Social Adjustment, Developmental Psychology  
1988–1990

*Broome Community College, Binghamton, New York*

**Adjunct Instructor**–Mathematics Department  
Taught College Algebra and Trigonometry, Finite Math, Statistics  
1982–1985

*Brigham Young University*

**Instructor**–Mathematics Department  
Worked as a temporary faculty member at BYU. Taught College Algebra and Trigonometry  
1981–1982

RELATED EXPERIENCE

*San Francisco Unified School District*

**School Psychologist**  
Did intellectual assessments and developed programs for disadvantaged children attending non-public schools. First two years were full-time, Second two years were part-time.  
1985–1989

*Binghamton City School District, Binghamton, New York*

**School Psychologist**  
Did intellectual and behavior assessments for children to determine eligibility for various special education programs. First year was full-time, other years were part-time.  
1982–1985

MEMBERSHIPS

Utah Advising and Orientation Association (pending)
Ross Nelson Taylor
119 West 500 South, St. George, UT 84770
(435) 673-5424
Rtaylor@dixie.edu

EDUCATION

University of Utah
B.A. in Science 1961
Arizona State University
M.A. in Natural Science 1966
Brigham Young University
Educational Specialist 1982
Utah State Public Schools
Administration/Supervision Certification

AWARDS

Outstanding Educator Award, St. George Jaycees 1969,1970
Distinguished Service Award, St. George Jaycees 1970
Eight time recipient of the Outstanding Chemistry Teacher Award, 1968-79
American Chemical Society
Utah Science Teacher of the Year 1979-1980
Outstanding Educator, St. George Chamber of Commerce 1991
Outstanding Educator, St. George Elks 1992
Outstanding Educator, Dixie College 1994

TEACHING EXPERIENCE

Dixie State College, St. George, UT
Adjunct Instructor – “Mathematics” 1994-present

Washington County School District, St. George, UT
High School Principal 1996 - 1997
Assistant Principal 1980-1984
Instructor-“Chemistry, Physics, Mathematics, Electronics” 1961-1980

RELATED EXPERIENCE

Dixie State College
Director, Educational Talent Search– 1998-2003
Paul Brooks  
537 North 2070 East  
St. George, UT 84790  
(435) 652-7984  
Brooks@dixie.edu

EDUCATION

<table>
<thead>
<tr>
<th>Institution</th>
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<th>Year</th>
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<tbody>
<tr>
<td>Brigham Young University, Provo, UT</td>
<td>M.A. in School Administration</td>
<td>1977</td>
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<tr>
<td>San Diego State University, San Diego, CA</td>
<td>M.A. in Mathematics</td>
<td>1970</td>
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<td>Portland State University, Portland, OR</td>
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<td>1968</td>
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<tr>
<td>Summer Institute in Computers and Mathematics</td>
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<td>Wayne State University, Detroit, MI</td>
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<td>Summer Institute in Mathematics for High School Teachers</td>
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<tr>
<td>Utah State University, Logan, UT</td>
<td>B.S. in Secondary Education and Mathematics</td>
<td>1965</td>
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<tr>
<td>Dixie College, St. George, UT</td>
<td>A.S. General Education</td>
<td>1960</td>
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AWARDS

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<tr>
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<th>Year</th>
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<tr>
<td>Outstanding Math Teacher</td>
<td>University of Utah School of Mines/Engineering</td>
<td>1988</td>
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<tr>
<td>National Science Foundation Grant</td>
<td>San Diego State University, San Diego, CA</td>
<td>1969-1970</td>
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<tr>
<td>National Science Foundation Grant</td>
<td>Portland State University, Portland, OR</td>
<td>1968</td>
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<tr>
<td>National Science Foundation Grant</td>
<td>Wayne State University, Detroit, MI</td>
<td>1967</td>
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TEACHING EXPERIENCE

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<th>Years</th>
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<tr>
<td>Adjunct Math Instructor</td>
<td>Dixie High School, St. George, UT</td>
<td>1999- Present</td>
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<tr>
<td>Mathematics Department Chairman/Teacher</td>
<td>Dixie Jr. High School, St. George, UT</td>
<td>1983-2000</td>
</tr>
<tr>
<td>Mathematics Teacher</td>
<td>San Juan High School, Blanding, UT</td>
<td>1978-1983</td>
</tr>
<tr>
<td>Principal</td>
<td>San Juan High School, Blanding, UT</td>
<td>1974-1978</td>
</tr>
<tr>
<td>Mathematics Department Chairman/Teacher</td>
<td>Lincoln County High School, Lincoln County, UT</td>
<td>1970-1974</td>
</tr>
<tr>
<td>Mathematics Department Chairman/Teacher</td>
<td>Lincoln County High School, Lincoln County, UT</td>
<td>1965-1969</td>
</tr>
</tbody>
</table>
Odean Bowler
205 East Tabernacle Street, Ste. 200
St. George, UT  84770
(435)628-2676
bowler@dixie.edu

EDUCATION

J. Reuben Clark Law School, BYU, Provo, UT
Juris Doctor 1995
Area of Emphasis: Intellectual Property, Trademarks, Negotiations and Real Estate

Weber State University, Ogden, UT
B.S. in Computer Science 1992
Area of Emphasis: Computer Languages

University of Utah, Salt Lake City, UT
B.S. in Electrical Engineering 1988
Areas of Emphasis: Signal Processing, Computers

AWARDS

Nominee/Finalist, “Teacher of the Year”, Dixie State College 2002?

TEACHING EXPERIENCE

Dixie State College, St. George, UT
Adjunct Instructor - Mathematics 1999-Present

OTHER WORK EXPERIENCE

Bowler & Associates, St. George, UT
Attorney/Public Defender 1996 - Present
Representation of clients in various legal matters. Defend clients in virtually all areas of criminal law including appeal work.

Software Engineer 1988-1992
Analyzed software engineering tools for the Air Force.
Kristine A. Cunningham  
377 West Mariposa Drive, Washington, Utah 84780  
435.229.3991  
kcunningham@admin.washk12.org

EDUCATION

Southern Utah University, Cedar City, Utah  
**Master of Education**  
Thesis: “Helping Middle School Students Achieve Academic Success through a Character Education Program.”  
2005

Brigham Young University, Provo, Utah  
**B.S. Elementary Education**  
1973

AWARDS

~ Finalist Washington County School District Teacher of the Year, 2002 and 2004  
~ Verizon GIFT Grant Recipient for Math/Science Collaboration 2001  
~ Wal-Mart Teacher of the Year 2000  
~ George Shell Secondary Math Educator of the Year 1996  
~ Huntsman Excellence in Education Recipient 1995  
~ Superintendent’s Award for Excellence 1993

TEACHING EXPERIENCE

Dixie Middle School, Washington County School District, St. George, Utah  
**Algebra Teacher**  
Teach 8th and 9th graders Algebra concepts as a pre-requisite for Geometry  
1990 – Present

Dixie State College, St. George, Utah  
**Adjunct Instructor** – “Math for Elementary Teachers 2010 and 2020  
Developed syllabus and overall course structure, and administered all grades.  
2003 – Present

Washington County School District, St. George, Utah  
**District Math Coordinator**  
Work with teachers, staff developers, and principals training on best practices in math education.  
Includes modeling math lessons at all levels, K – 12.  
2005 – Present

Utah State Office of Education  
**State Math Trainer for Secondary Educators**  
Worked with secondary math teachers on different strategies to use in teaching mathematics  
2002 – 2009

Socorro Independent School District, El Paso, Texas  
**Fifth Grade Teacher**  
1988 – 1990

Department of Defense Schools, Germany  
**Fifth/Sixth Grade Teacher**  
1983 – 1988  
and  
1978 – 1981

Spectrum Academy for Gifted and Talented, El Paso, Texas  
**Upper Grade Teacher**  
1981 – 1983

Provo School District, Provo, Utah  
**Sixth Grade Teacher**  
1973 – 1978
RELATED EXPERIENCE

Salt Lake City, Utah

**Utah Mentor Academy Graduate** 2006
Trained on how to mentor teachers, how to coach peers, and how to provide leadership in education

Las Vegas, Nevada

**Professional Learning Community** 2004 and 2005
Attended workshop to assist implementation in Washington County School District schools.

Washington County School District, St. George, Utah

**Seven Habits for Highly Effective People** 1996
Trained facilitator for ‘Seven Habits’. Provided several trainings in Washington County School District for district personnel

PUBLICATIONS/PAPERS/PRESENTATIONS

~ ASPIRE (A Success Program In Reaching Excellence) Curriculum. Chairperson for writing 3 years of Character Education curriculum for Middle School students 2000

~ National Council of Teachers of Mathematics Presenter at 4 National Conferences and 2 Regional Conferences

MEMBERSHIPS

~ National Council of Teachers of Mathematics

~ ASCD Member
Robert J. Comeford  
72 West Juniper Circle  
Washington, UT 84780  
(435)673-5435  
bcomeford@dixie.edu

EDUCATION

Utah State University, Logan, UT  
M.Ed. in Secondary Education 1980

Southern Utah State College (SUU), Cedar City, UT  
B.S. in Mathematics – Level 4 Secondary Ed with Teaching Degree 1973  
Minor in Physical Education

Utah State University, Logan, UT  
Administrative/Supervisory Certificate (K-12) 1983

AWARDS

Outstanding Teacher  
National Council of Teachers of Mathematics

State of Utah, Teacher of the Year Nominee  
Ranked among the top three

Utah High School Association  
5 Time “Coach of the Year” Award

TEACHING EXPERIENCE

Dixie State College of Utah, St. George, UT  
Adjunct Math Instructor 2004-present

Public School Teacher of Mathematics

Washington County School District, St. George, UT 1973-2004
Michele Poast  
190N 1580W, Hurricane, Utah 84737  
632-8371  
poast@dixie.edu

EDUCATION

Fayetteville State University, Fayetteville, NC  
M.S. in Mathematics  1999

Hawaii Pacific University, Honolulu, HI  
B.A. in Mathematics  1995

TEACHING EXPERIENCE

Dixie State College, St. George, UT  
Mathematics Instructor – Math 0920, 0990, 1010, 1050, 1100, 1210, 1220,  
2010, 2020, 2210, PBC 0800, 1000, Stat 2040  2001-Present

Hawaii Pacific University, Honolulu, HI  1999-2000

Adjunct Instructor – Math 0990, 1050, Stat 2040

University of Maryland, College Park, MD  1999

Teaching Assistant – Math 1050
Robert T. Reimer  
2368 East 390 North  
St. George, UT  84770  
(435)652-1143  
reimer@dixie.edu

EDUCATION

Southern Utah University, Cedar City, UT  
M. Ed. in Secondary Education  
Endorsement:  English as a Second Language (ESL)  
1997

Brigham Young University, Provo, UT  
B.A. in Mathematics Education (Level 4)  
Minor:  Computer Science Teaching  
1993

Dixie State College, St. George, UT  
Endorsement:  Secondary Choral and Vocal Music  
2003

TEACHING EXPERIENCE

Dixie State College, St. George, UT  84770  
Adjunct Instructor  
Mathematics – Math 1010, Math 1050, Math 1210, Math 1040  
1999-Present

Washington County School District, St. George, UT  84770  
Teacher – Current Assignment: Snow Canyon High School  
Current Teaching Load:  SCHS Choirs, Orchestra, Intermediate Algebra  
1993-Present

AWARDS

Washington County School District, St. George, UT  
Superintendent’s Award of Excellence for Outstanding Teaching  
1998
Ryan Cascade McConnell
112 E 300 N, Ivins, UT 84738
702.524.5612
cmcconnell@dixiehigh.org

EDUCATION

Walden University, Minneapolis, MN
M.S. in Education 2004
Areas of Concentration: Curriculum, Instruction, & Assessment

University of Nevada, Las Vegas
B.S. Secondary Education 2000
Area of Concentration: Mathematics

TEACHING EXPERIENCE

Silverado HS, Las Vegas, NV 2000 - 2001
Math Teacher

Centennial HS, Las Vegas, NV 2001 - 2006
Math Teacher

Community College of Southern Nevada 2003 - 2006
ESL Teacher

Dixie HS, St. George, UT 2006 - Present
Math Teacher, Data Coach

Dixie State College, St. George, UT 2007 - Present
Adjunct Math Professor
Barbara A. Talley  
1946 Carolina Circle  
St. George, UT 84790  
(435)773-6464  
talley@dixie.edu

EDUCATION

Texas A&M University, College Station, TX  
M.S. in Computer Science  1998  
Honors: Board of Regents Graduate Fellowship, 1990-1991

The University of Tennessee at Martin, Martin, TN  
B.S. in Secondary Education  1972  
Areas of Concentration: Health, Physical Education, and Mathematics

TEACHING EXPERIENCE

Dixie State College, St. George, UT  
Adjunct Instructor – Department of Mathematics  2009 – 2010  
Develop syllabi and overall course structure, and administer all grades for assigned College Algebra/Pre-Calculus courses.

Texas A&M University, College Station, TX  
Teaching Assistant – to Dr. Petersen in Computer Science  1991 – 1992  
Supervised lab programming exercises, administered lab grades, and assisted in grading lecture tests for programming in Pascal and Fortran.

The University of Tennessee at Martin, Martin, TN  
Adjunct Instructor – Department of Mathematics and Computer Science  1982 – 1989  
Developed overall course structure and administered grades for developmental math courses.

Tennessee – Union City School District  
Florida – Orange County and Seminole County School Districts  
In addition to classroom instruction, worked on a team that developed supplemental mathematics materials for sixth graders, and volunteered as a math tutor at a facility for troubled youths.

RELATED EXPERIENCE

Learning Designs, Inc., Park City, UT  
Instructional Designer/Developer  2001 – Present  
Design/develop custom learning systems (both paper-based and computer-based) for internal instructional and training use by major corporations, primarily pharmaceutical. Work involves researching, writing, editing, proofing, designing/developing supporting graphics and animations, and the generation of progress checks, chapter/module reviews, and exams.

ARUP Laboratories, Salt Lake City, UT  
IT Applications Development Supervisor  2001 – 2007  
Supervised a software development team responsible for the development and maintenance of software to track specimens submitted for testing at ARUP. Played key role in promoting continuous education/training for software developers and establishing standards for software quality, technical documentation, and process improvement for ARUP’s IT Department.
Craig Seegmiller  
553 East 200 South  
St. George, UT  84770  
(435)652-1781  
cseegmiller@dixie.edu

EDUCATION

Thunderbird School of Global Management, Glendale, AZ  
Master of Business Administration  
1990

Brigham Young University, Provo, UT  
B.A. in Math Education  
Minor: Physics Education  
1986

Dixie State College, St. George, UT  
A.S. in General Education  
Graduated with Highest Honors, Student Athlete (baseball)  
1983

AWARDS

Outstanding Math Education Graduate, Brigham Young University  
1986

Outstanding Student Athlete, Brigham Young University  
1986

TEACHING EXPERIENCE

Dixie State College, St. George, UT  
Adjunct Instructor - Mathematics  
2009-present

Washington County School District, St. George, UT  
Teacher – Math & Science  
1986-1990

MEMBERSHIPS

Washington County School District, St. George, UT  
Washington County School Board Member  
2001-present

Dixie Applied Technical College (DXATC), St. George, UT  
Founding Board Member  
2001-2009
APPENDIX B: REQUIRED COURSES

FOR THE MATHEMATICS EDUCATION DEGREE

AND FOR MATHEMATICS ENDORSEMENT
### MATHEMATICS EDUCATION DEGREE

<table>
<thead>
<tr>
<th>MATH #</th>
<th>MATH COURSES</th>
<th>CREDITS</th>
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<tbody>
<tr>
<td>MATH 1040</td>
<td>Statistics</td>
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<td>MATH 1010</td>
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<tr>
<td>MATH 1210</td>
<td>Calculus I</td>
<td>5</td>
<td>MATH 1050/1060 OR 1065</td>
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<tr>
<td>MATH 1220</td>
<td>Calculus II</td>
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<td>MATH 1210</td>
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<tr>
<td>MATH 2210</td>
<td>Multivariable Calculus</td>
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<td>MATH 1220</td>
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<tr>
<td>MATH 2270</td>
<td>Linear Algebra</td>
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<td>MATH 1210</td>
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<tr>
<td>MATH 2280</td>
<td>Ordinary Differential Equations</td>
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<td>MATH 1220</td>
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<tr>
<td>MATH 2220</td>
<td>Discrete Mathematics</td>
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<td>MATH 1210</td>
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<tr>
<td>MATH 3000</td>
<td>History of Mathematics</td>
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<td>MATH 1220</td>
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<tr>
<td>MATH 3100</td>
<td>Euclidean/ Non-Euclidean Geometry</td>
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<td>MATH 2200</td>
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<tr>
<td>MATH 3200</td>
<td>Introduction to Analysis</td>
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<td>MATH 2210/2200</td>
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<tr>
<td>MATH 3400</td>
<td>Probability and Statistics</td>
<td>3</td>
<td>MATH 1220</td>
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<tr>
<td>MATH 3900</td>
<td>Number Theory</td>
<td>3</td>
<td>MATH 2200</td>
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<tr>
<td>MATH 4000</td>
<td>Foundations of Algebra</td>
<td>3</td>
<td>MATH 2200</td>
</tr>
<tr>
<td>MATH 4500</td>
<td>Methods/Teaching Sec. School Math</td>
<td>3</td>
<td>MATH 1210</td>
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</table>

**TOTAL SEMESTER CREDITS** 45 (Must achieve a "C" or better in each course)

**OTHER REQUIRED COURSES**

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<tr>
<th>COURSE</th>
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<tbody>
<tr>
<td>PHYS 2210</td>
<td>Physics for Scientists/Engineers I</td>
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<td>MATH 1210</td>
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<tr>
<td>PHYS 2215</td>
<td>Physics Lab I</td>
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<td>w/PYHS 2210</td>
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<tr>
<td>CS 1400</td>
<td>Foundations of Programming</td>
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**TOTAL SEMESTER CREDITS** 8 (Must achieve a "C" or better in each course)

**EDUCATION COURSES**

<table>
<thead>
<tr>
<th>COURSE</th>
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<th>CREDITS</th>
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<tr>
<td>EDUC 1010</td>
<td>Introduction to Education</td>
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</tr>
<tr>
<td>EDUC 2400</td>
<td>Foundations of Multicultural Education</td>
<td>3</td>
</tr>
<tr>
<td>EDUC 2010</td>
<td>Introduction to Exceptional Learners</td>
<td>3</td>
</tr>
<tr>
<td>EDUC 3110</td>
<td>Educational Psychology</td>
<td>3</td>
</tr>
<tr>
<td>EDUC 2500</td>
<td>Technology for Secondary Teachers</td>
<td>3</td>
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<tr>
<td>SCED 3720</td>
<td>Read/Write in Content Areas</td>
<td>3</td>
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<tr>
<td>SCED 4100</td>
<td>Curriculum, Instruction, Assessment</td>
<td>3</td>
</tr>
<tr>
<td>SCED 4600</td>
<td>Classroom Management</td>
<td>3</td>
</tr>
<tr>
<td>SCED 4900</td>
<td>Secondary Student Teaching</td>
<td>10</td>
</tr>
<tr>
<td>SCED 4989</td>
<td>Student Teaching Seminar</td>
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</table>

**TOTAL SEMESTER CREDITS** 36 (Must achieve a "C" or better in each course)

**ELECTIVE CREDIT** 6

**TOTAL GE COURSES CREDITS** 25

**TOTAL DEGREE CREDITS** 120
# MATHEMATICS ENDORSEMENT

<table>
<thead>
<tr>
<th>MATH #</th>
<th>MATH COURSES</th>
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<td>MATH 1210</td>
<td>Calculus I</td>
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<td>MATH 1050/1060 OR 1065</td>
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<td>MATH 1220</td>
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<td>MATH 2270</td>
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**TOTAL SEMESTER CREDITS** 24
APPENDIX C: COURSE DESCRIPTIONS
Course Descriptions

MATHEMATICS (MATH)

MATH 1001 1st Yr Exp - Intro to Math 1.00 CR

MATH 1001 is an orientation course created to help students succeed in the math major. It is also designed to help new freshman and returning students to make a successful transition to being a college student. The primary objective of this course is to provide you with the resources you will need to succeed in your college career, particularly in your math courses. 2 lecture hours per week.

MATH 1010 Intermediate Algebra 4.00 - 5.00 CR

Designed for students who need preparatory work before entering the minimum courses that fulfill the general education math requirement. Concepts emphasized in this course include the properties of the real number system, sets, functions, graphs, algebraic manipulations, linear and quadratic equations, systems of equations, and story problems. Students will be expected to reason mathematically and solve mathematical problems. This course is a lecture course and will include homework assignments, quizzes, tests, and a comprehensive final exam. Successful completion of the course gives students good preparation for college-level math courses. Satisfies prerequisites for MATH 1030, 1050, 1090, and BIOL 2400.

Prerequisite: MATH 0990 (with an earned grade of C or better) or ACT score of 18 or higher within two years of enrollment. 4 or 5 lecture hours per week.

MATH 1030 Quantitative Reasoning *MA 3.00 CR

This course is designed for general studies or liberal arts students majoring in humanities or other non-science programs seeking only an associate degree or certificate. The focus of the course is on the development of analytical problem solving skills through the application of various mathematical concepts to real-life problems. Topics of study include: modeling with algebra; geometry; logic; financial math; right triangle trigonometry (indirect measurement); probability and statistics. Successful completion of this course will satisfy the general education math requirements. Students who wish to enter four year programs are strongly encouraged to check with departments at transfer schools to determine program compatibility. Although this course transfers to all colleges and universities in Utah, it does not commonly meet specific department requirements.

Prerequisite: Math 1010 (with an earned grade of C or better) or ACT score of 23 or higher. 3 lecture hours per week.

MATH 1040 Intro to Statistics *MA 3.00 CR

Designed as an introduction to basic concepts and methods used in statistical data analysis. Course includes descriptive statistics, sampling and inferential methods. Emphasizes problem solving and critical thinking.

Prerequisite: Math 1010 (with an earned grade of C or better ) OR placement test score of 23 or higher. 3 lecture hours per week.
**MATH 1050 College Algebra/Pre-Calculus *MA 4.00 - 5.00 CR**

Designed for students majoring in science and engineering who need a calculus and/or physics series. Review of fundamental algebra. Polynomial and rational functions will be explored. Introduction into exponential and logarithmic functions and their applications. Trigonometric functions dealing with graphs, identities and equations including inverse functions. This course is a lecture course with homework assignments, quizzes, tests, and a comprehensive final exam. Successful completion of the course prepares students for MATH 1060. Satisfies prerequisites for MATH 1060, MATH 1100 and MATH 2010. Math 1050 is required for Utah Teacher Certification.

Prerequisite: MATH 1010 (with an earned grade of C or better) or ACT score of 23 or higher within two years of enrollment. 4 to 5 lecture hours per week.

**MATH 1060 Trigonometry *MA 3.00 CR**

Continuation of MATH 1050. Further discussion in trigonometry and its applications. Analytic Geometry including conic sections, systems of equations and inequalities and partial fractions. Introduction into discrete algebra including sequences and series and the binomial theorem. This course is a lecture course with homework assignments, quizzes, tests, and a comprehensive final exam. Successful completion of the course provides students with the concepts needed to continue in a Physics or Calculus series. Satisfies prerequisites for MATH 1210 and PHSX 1110.

Prerequisite: Math 1050 (with an earned grade of C or better) or equivalent. 3 lecture hours per week.

**MATH 1065 Precalculus w/Trigonometry *MA 5.00 CR**

Designed for students who need an in depth review of precalculus and trigonometry before entering trig-based calculus. This course reviews the mathematical concepts taught in Math 1050 and Math 1060. Students who choose to apply Math 1065 toward graduation cannot also count Math 1050 or Math 1060.

Prerequisite: Within the previous two years a placement test score equivalency of 25 or better OR within the past two years Math 1010 with an earned grade of B or better OR successful precalculus experience more than two years ago. 5 lecture hours per week.

**MATH 1100 Business Calculus *MA 3.00 CR**

Designed for students majoring in business, life sciences, certain computer science emphases, and certain allied health programs who are required to take a one semester calculus course. Concepts emphasized in this course include functions, modeling, differentiation, applications of differentiation, exponential and logarithmic functions, integration, applications of integration, and functions of several variables. Course includes; lectures, homework assignments, quizzes, tests, and a comprehensive final exam. Successful completion of the course provides students with the required calculus techniques that satisfy all areas requiring just one quarter of calculus.

Prerequisite: Math 1050 or Math 1090 (with an earned grade of C or better) or ACT score of 25 or higher. 3 lecture hours per week.
**MATH 1210 Calculus I *MA 5.00 CR**

Designed for students intending to earn an Associate of Science degree and then transfer to a mathematics, engineering program, or other calculus-based major at a four-year institution. Students will gain a basic understanding of calculus, the mathematics of motion and change. Topics include limits and continuity, differentiation, applications of differentiation, integration, applications of integration, derivatives of exponential functions, logarithmic functions, inverse trigonometric functions, hyperbolic functions and related integrals. Students must have a working knowledge of college algebra and trigonometry, and a graphing calculator is strongly recommended. Course includes lecture and homework assignments, quizzes, tests and a final comprehensive exam. Successful completion of the course prepares students for Calculus II. Satisfies prerequisites for MATH 1220 and PHSX 2210.

Prerequisites: MATH 1050 and MATH 1060, or MATH 1065 (with an earned grade of C or better) or ACT score of 26 or higher. (Math 1060 is strongly recommended for all students.) 5 lecture hours per week.

**MATH 1220 Calculus II *MA 4.00 CR**

This course is the continuation of MATH 1210. Topics covered includes arc length, area of a surface of revolution, moments and centers of mass, integration techniques, sequences and series, parameterization of curves and polar coordinates, vectors in 3-space, quadric surfaces, and cylindrical and spherical coordinates. Course includes lecture, homework assignments, quizzes, tests and final comprehensive exam. Successful completion of the course prepares students for MATH 2210.

Prerequisite: Math 1210 (with an earned grade of C or better) or equivalent. 4 lecture hours per week.

**MATH 1800 Mathematics Work Experience 1.00 - 3.00 CR**

Cooperative Education relates the classroom to the employment community. Those with a designated major and a vocational or career interest may be assisted in locating employment that relates to classroom studies. If a student has approved employment, they may be eligible for academic credit based upon the completion of structured learning objectives. Cooperative Education is available in all divisions. Permission must be obtained from the director of cooperative education before registration. Students are limited to four cooperative education credit courses or 12 cooperative education credits. Fall section.

**MATH 1810 Mathematics Work Experience 1.00 - 3.00 CR**

Cooperative Education relates the classroom to the employment community. Those with a designated major and a vocational or career interest may be assisted in locating employment that relates to classroom studies. If a student has approved employment, they may be eligible for academic credit based upon the completion of structured learning objectives. Cooperative Education is available in all divisions. Permission must be obtained from the director of cooperative education before registration. Students are limited to four cooperative education credit courses or 12 cooperative education credits. Spring section.

**MATH 1820 Mathematics Work Experience 1.00 - 3.00 CR**

Cooperative Education relates the classroom to the employment community. Those with a designated major and a vocational or career interest may be assisted in locating employment that relates to classroom studies. If a student has approved employment, they may be eligible for academic credit based upon the completion of structured learning objectives. Cooperative Education is available in all divisions. Permission must be obtained from the director of cooperative education before registration.
Students are limited to four cooperative education credit courses or 12 cooperative education credits. Summer section.

**MATH 2010 Math for Elem Teachers I 3.00 CR**

The first course in a two-semester sequence in mathematics appropriate to the needs of the elementary/middle school teacher. Topics include: problem solving, sets, numeration systems, whole numbers, algorithms of arithmetic, number theory, rational numbers and decimal numbers. Required for prospective elementary school teachers.

Prerequisite: Math 1050 (with an earned grade of C or better) and is required for Level 1 Math Endorsement and Elementary (K-8) Certification. 3 lecture hours per week.

**MATH 2020 Math for Elem Teachers II 3.00 CR**

A continuation of Math 2010. Topics include: real numbers, statistics, probability, geometry, measurement, and algebra. Required for prospective elementary school teachers.

Prerequisite: MATH 2010 with an earned grade of C or better. 3 lecture hours and 2 practicum hours per week.

**MATH 2200 Discrete Mathematics 3.00 CR**

Designed primarily for students majoring in computer science. Topics include logic (including Boolean), set theory, functions, prepositional calculus, graph theory, combinatorics and counting methods. Prerequisite: Math 1100 or 1210 (with an earned grade of C or better). (Offered spring semesters.) 3 lecture hours per week.

**MATH 2210 Multivariable Calculus *MA 3.00 CR**

This course is the continuation of MATH 1220. Includes partial derivatives, gradient vectors, Lagrange multipliers, multiple integrals, line integrals, Green's Theorem, surface integrals, the Divergence Theorem, and Stokes' Theorem. MathCAD - Calculus will also be introduced in computer labs. Course includes lecture and homework assignments, quizzes, tests and a comprehensive final. Successful completion of the course prepares students for all areas that require calculus as a prerequisite. Satisfies prerequisites for ENGR 2000.

Prerequisite: Math 1220 with an earned grade of C or better. 3 lecture hours per week.

**MATH 2270 Linear Algebra 3.00 CR**

Designed for mathematics and pre-engineering majors. Covers matrix and vector analysis and systems of equations with applications, linear dependence and independence, matrix algebra and invertibility, determinants and their applications, Cramer's Rule, diagonalization, eigenvalues and eigenvectors, linear transformations (kernel and range), inner product and orthogonality. Covers vector spaces and subspaces, including null and column and bases. Introduces basic proof theory. Uses lecture, text assignments, student presentations and discussions. Successful completion enhances students' post-calculus mathematical skills.

Prerequisite: Math 1210 with an earned grade of C or better. 3 lecture hours per week.
**MATH 2280 Ordinary Differential Equation 3.00 CR**

Designed for mathematics and pre-engineering majors. Covers methods of solving ordinary differential equations with applications. Separation of variable, homogeneous and non-homogeneous, exact, first and higher order, integrating factors, substitution methods, linear and non-linear, complex characteristic roots, variation of parameters, undetermined coefficients (superposition and annihilator approach) and Euler-Cauchy will be covered. Systems of equations, power series solutions, and the Laplace transform will be introduced. Uses lecture, text assignments, student presentations, and class discussion. Successful completion enhances students' post-calculus mathematical skills with applications.

Prerequisites: Math 2210 and Math 2270 with an earned grade of C or better. (Concurrent enrollment allowed.) 3 lecture hours per week.

**MATH 2989 TI-89 Calculator Skills 1.00 CR**

A course designed specifically to aid students in using the TI-89 calculator. A study guide will be provided, with demonstrations projected overhead for students to follow as they learn through hands-on experience. Covered features include basic computation, matrices, graphing, and calculus applications. The TI-92 and TI Voyage 200 calculators are similar to the TI-89 and are also acceptable tools for the course.

Prerequisite: Own or have access to TI-89, TI-92 or TI Voyage 200 calculator. One lecture hour per week.

**MATH 3000 History of Mathematics 3.00 CR**

Designed for all interested students. This course is a brief survey of the history of mathematics and its impact on world culture. Emphasis will be on the principal ideas of importance in the development of the subject, mathematical motivations and applications. This course partially fulfills requirements for Mathematics Endorsements Level 4 through the Utah State Office of Education. Offered upon sufficient demand.

Prerequisite: MATH 1220 (with an earned grade of C or better). 3 lecture hours per week.

**MATH 3100 Euclidean/Non-Euclidean Geometry 3.00 CR**

Designed primarily for education majors. This course includes axiomatic development of geometry: Euclidean and non-Euclidean. This course partially fulfills requirements for Mathematics Endorsements Level 3 and 4 through the Utah State Office of Education. Offered upon sufficient demand.

Prerequisite: MATH 1220 and MATH 2300 (with an earned grade of C or better). 3 lecture hours per week.

**MATH 3200 Intro to Analysis 3.00 CR**

Designed for those interested in advanced mathematics. This course introduces the construction of rigorous proofs of mathematical claims in beginning analysis. This course partially fulfills requirements for Mathematics Endorsements Level 3 and 4 through the Utah State Office of Education. Offered upon sufficient demand.

Prerequisite: MATH 2210, MATH 2280 and MATH 2300 (with an earned grade of C or better). 3 lecture hours per week.
**MATH 3210 Intro to Analysis II 3.00 CR**

Continuation of MATH 3200. Advanced Multivariable Calculus. Topics include continuity, differentiation, chain rule, Riemann integration, Fubini’s theorem, change of variable formula.

Prerequisite: MATH 3200. 3 lecture hours per week.

**MATH 3400 Probability and Statistics 3.00 CR**

Designed for students in majors that require math-based statistics. This course is a study of probability theory and mathematical statistics including applications. This course partially fulfills requirements for Mathematics Endorsements Level 3 and 4 through the Utah State Office of Education. Offered upon sufficient demand.

Prerequisite: MATH 1220 (with an earned grade of C or better). 3 lecture hours per week.

**MATH 3500 Numerical Analysis 3.00 CR**


Prerequisites: Math 2270, Math 2280. 3 lecture hours per week.

**MATH 3900 Number Theory 3.00 CR**

An overview of number theory and it's applications, including the integers, factorizations, modular arithmetic, congruencies, Fermat's and Euler's Theorems, Diophantine equations, cryptography, and RSA algorithm.

Prerequisite: MATH 2300. 3 lecture hours per week.

**MATH 4000 Foundations of Algebra 3.00 CR**

Designed for students in all math-related majors. This course covers an introduction to algebraic systems including groups rings, fields and sets. This course partially fulfills requirements for Mathematics Endorsements Level 3 and 4 through the Utah State Office of Education. Offered upon sufficient demand.

Prerequisite: MATH 1220 and MATH 2300 (with an earned grade of C or better). 3 lecture hours per week.

**MATH 4010 Abstract Algebra 3.00 CR**

Continuation of MATH 4000. Topics include Sylow Theory for finite groups, Galois Theory, factorization in commutative rings.

Prerequisite: MATH 4000. 3 lecture hours per week.

**MATH 4100 Intro to Topology 3.00 CR**

An overview of elementary point-set topology. Topics include topological spaces, compactness, connectedness, metric spaces, and Hausdorff spaces.

Prerequisites: MATH 2210, MATH 2300. 3 lecture hours per week.
**MATH 4200** Intro to Complex Analysis 3.00 CR

An overview of basic theory and applications of complex variables. Topics include analytic functions, contour integration, and conformal mappings.

Prerequisite: MATH 3200. 3 lecture hours per week.

**MATH 4500** Methods/Teaching Secondary School Math 3.00 CR

Designed for education majors. This course covers methods, remedial instruction and curriculum development for secondary school mathematics. Includes applications of calculators and computers in mathematics. This course partially fulfills requirements for Mathematics Endorsements Level 2-4 through the Utah State Office of Education. Offered upon sufficient demand.

Prerequisite: MATH 1210 (with an earned grade of C or better). 3 lecture hours per week.
APPENDIX D: LIBRARY AND INFORMATION RESOURCES
Dixie State College is well aware that building library sources is an integral part of program development, and the Browning Library continues to expand appropriate collections for current baccalaureate offerings. The Browning Library is committed to supporting the baccalaureate programs by ordering any material requested by a department.

The library currently has sufficient titles in mathematics itself, with additional titles in secondary mathematics and an abundance of titles in secondary education. Many of the resources in the library are electronic offerings. Journals in mathematics and math education are on the library shelves, and videos and CDs are also available.

Among other resources, the library has the following databases relevant to the Math Ed degree:

**Global Search**: a meta-search engine that searches multiple databases for various topics. It includes catalogs, databases and online resources. This search engine will be replaced soon by a similar search engine to be selected by the Utah Academic Library Consortium.

**Academic Search Premier** (EBSCO Host): a scholarly, multi-disciplinary database with full text coverage of 4600 journals in a range of subjects. This database is a good starting point for almost any topic search.

**American Mathematical Society Journals**: a searchable database that provides full text access to articles published in the journals of the AMS.

**Annual Reviews**: full text of various annual (subject/discipline) reviews online.

**JSTOR**: a scholarship journal archive that provides image and full text access to archival (more than five years old) scholarly journals in various subject areas.

**MathSciNet**: access to over 50 years of mathematical reviews and data. The database is a finding source for citations for scholarship in this discipline.

**Project Muse**: full text of over 40 scholarly journals from the Johns Hopkins University Press.

**Web of Science**: consolidated searching of citation search engines and multi-disciplinary listings of articles in 8500 major scholarly journals.

Other useful resources include the library catalog, electronic books, Utah’s catalog, full-text periodicals list, and interlibrary loan.

Physical materials in the Browning Library include a mathematics education physical periodicals list (at least one year’s worth of issues), the *Journal for Research in Mathematics Education*, *Mathematics Teacher*, and the *National Council of Teachers of Mathematics News Bulletin*.

There are 41 math education video recordings and 28 CD-ROMS. Other physical materials include a total 482 titles on the study and teaching of mathematics, but only 38 of them has secondary education as a subject heading. This is one area that will need to be addressed and amplified in the near future.