

OVERVIEW AND SCOPE OF THE MATHEMATICS EDUCATION PROGRAM

Mission

College Mission

Loyola College in Maryland is a Catholic comprehensive university, in the educational and spiritual traditions of the Society of Jesus and the Religious Sisters of Mercy, dedicated to the ideals of liberal education and the practice of cura personalis. Loyola College in Maryland challenges students to learn, lead, and serve in a diverse and changing world.

"...The mission places its rhetorical emphasis on learning rather than teaching, while acknowledging that the two are in many ways different covers of the same book. We believe that we must cultivate in students the habits and discipline of serious scholarly thought, engage them in the intellectual life, and wrest from them a willingness to commit the time and energy required to think deeply and critically. In doing so, we aim not only to illuminate our students' minds but also to teach them to serve as beacons to others in a global society." (*Magis: A Strategic Plan for the New Millennium* p5.)

Education Department Mission

Within the Jesuit traditions of intellectual excellence, social justice, ethical responsibility, and cura personalis, the Education Department of Loyola College promotes leadership and scholarship in the development of teachers, counselors, administrators, and other educators.

Building on the traditions and focus of the college mission, the Education Department extends the strong academic training of Loyola's liberal arts students. By stressing service-learning in field experiences and internships and by

Knowledge Base, Philosophy, Goals and Objectives

Knowledge Base

The knowledge base for the Mathematics Education program is formed from a variety of National, State, and local standards. The INTASC Principles represent the core of the content and structure of the program and serve to guide the assessments that are the capstone of the program for all candidates. For the Mathematics program, teaching methods are developed from a series of sources that include the *Maryland High School Core Learning Goals: Mathematics Standards*, and the *National Council of Teachers of Mathematics (NCTM) Standards*. Content area coverage is based on the individual perspectives and vision of the faculties of the Mathematical Sciences and is consistent with the standards set forth by NCTM, as indicated in the matrices included in this program review.

Philosophy

The secondary Teacher Education Program at Loyola College is based on the philosophy that teaching is a mission. This mission calls for students to be well-versed in content and theory. The content and theory must be integrated with multiple and diverse opportunities for implementation in order to become an effective practitioner. Inherent in this is the belief that each person is an individual with different learning styles.

Goals and Objectives

The goal of the secondary Teacher Education Program is to enable candidates to become knowledgeable and professional practitioners through a model program developed in a collaborative effort involving Loyola faculty, the State Department of Education, school systems, local schools, and professional organizations.

The objectives of the program are to develop candidates who:

1. demonstrate and document knowledge, understanding and application of INTASC standards;
2. apply the general theories of education to a specific content area;
3. meet Maryland certification requirements.

Within each Professional Development School collaboration, the ultimate goal of the Loyola faculty and the participating school(s) is to develop a model of excellence through a collaborative effort that includes:

- providing an extensive internship experience which integrates theory and practice;
- conducting an application process that ensures equity and is open to any student who meets specific requirements;
- ensuring that teacher candidates become integral members of the school's professional community;
- providing the candidate with opportunities to experience other teaching styles;
- governing itself through a steering committee;
- ensuring a planning process that consists of a needs assessment, goal setting, an action plan and an evaluation;
- engaging in formulating, utilizing and evaluating instructional approaches, methodologies and techniques;
- providing professional development for teachers;
- engaging in action research as identified by school needs.

Each Professional Development School links its efforts to both school improvement and teacher education reforms. It is seen as a learning community for all.

Mathematics Curriculum with Secondary Education Minor

Loyola's curriculum for Middle/Secondary Mathematics certification provides a solid grounding in the liberal arts and in the Mathematics content area, as well as a

comprehensive sequence of education courses. The major requires a minimum of 10 upper division courses in the mathematical sciences and 18 courses in the liberal arts. The Core comprises eighteen courses of the forty (3 or 4 credit) courses required for graduation and contributes to the content knowledge of candidates. The core includes: three credits in composition; three credits in fine arts; six credits in history; six credits in literature; nine credits in math and science; six credits in social sciences; six credits in foreign language and fifteen credits in philosophy, theology and ethics.

In keeping with NCTM standards, the Mathematical Sciences Department focuses on mathematics as a profound part of our culture, a science of pattern and order that helps us understand the world around us. Mathematics teaches high-level analytical and critical thinking skills that can be applied in various fields. The range of applications of mathematics and statistics is continually being widened as more fields of endeavor find quantitative analysis central to their work.

Cryptography, biostatistics, econometrics, high speed computing, operations research in business, actuarial risk analysis, and satellite communications are but some examples of areas that use and require high level mathematical techniques. As such, a wide variety of career opportunities exist for majors in the mathematical sciences.

The Mathematics Sciences Department is strongly committed to undergraduate teaching, and offers a variety of courses of study, with concentrations in pure and applied mathematics, statistics, actuarial science, computer science, secondary education, and operations research, providing majors an opportunity to concentrate in those areas that most interest them. The Mathematical Sciences Department also offers minors in Mathematical Sciences and Statistics. Each candidate is assigned a faculty advisor in the department who meets with the candidate, aids in the choice of a concentration and monitors the candidate's progress. Experienced faculty conducts instruction; no teaching or graduate assistants are used.

The Education Department offers candidates majoring in mathematics the opportunity to take the coursework needed to become certified to teach at the secondary level in Maryland. The education requirements include *Educational Psychology*, *Introduction to Special Education*, *Teaching Reading in the Content Area*, *General and Mathematics Methods of Teaching*, and *Internship* (Internship I and II). Through this coursework candidates explore major theories and principles of learning, motivation and assessment in light of current research and the application to learning and teaching. They examine the biological and psychological perspectives that contribute to the normal development of an individual from prenatal growth through young adulthood focusing on cognitive, language, motor, socialization, personality and moral development. The candidates discuss and recognize the impact of socioeconomic status and poverty on child development and family relations. They are expected to apply theoretical principles of child development to construct meaningful teaching experiences for all students. They critically examine the trends in child development patterns from a multicultural perspective and recognize the role culture plays in child development and teaching. Candidates become familiar with the ethical principles guiding the teaching of students

and become proficient in various forms of technology and demonstrate the ability to integrate such practices in teaching students. In order to meet the needs of their future students, candidates are provided with a basic understanding of special education, the diverse learner, and assessment and instructional strategies for adolescents with special needs. Candidates are expected to be able to identify and describe major philosophies, theories and trends in the field of special education. For each area of disability, candidates become familiar with general information on physical and psychological characteristics, incidents and etiology, diagnostic and therapeutic services, interventions and educational programs, technology, and findings of recent research. Candidates demonstrate an understanding of issues related to the assessment, identification and placement of students with various exceptionalities. In addition, candidates are expected to identify federal laws and regulations relative to rights and responsibilities, student identification and delivery of services.

Candidates are expected to create unit plans in mathematics that are consistent with Maryland Core Learning Goals. Within the context of the unit plan, they develop daily lessons that utilize a variety of teaching strategies and methods of assessment in order to create positive classrooms environments conducive to student learning and safety. They focus on establishing objectives that are measurable and in keeping with national and state guidelines for mathematical knowledge. They consider Dimensions of Learning, teaching and learning styles, questioning techniques, and gender and ethnic issues relative to classroom instruction. The candidates come to an understanding that organization and comprehensive planning are the basis for effective classroom management.

Candidate Course of Studies in Mathematical Sciences

After the traditional grounding in calculus and statistics in freshman year, the sophomore year exposes candidates to a broad variety of courses in various other branches of mathematics. This allows candidates, in consultation with their faculty advisor to make an informed choice of concentration at the end of their second year. The choice of concentration determines what sequence of courses the candidate pursues in junior and senior year.

FIRST YEAR

Fall

MA 251 - Calculus I

CS 201 - Computer Science I

Spring

MA 252 - Calculus II

MA 210 - Statistics

Note: MA210 has replaced CS202. Thus, CS202 is no longer a requirement. However, there are many careers for mathematical science candidates that require knowledge of computer programming. We strongly recommend students take CS202 either in the spring of freshman year or their sophomore year.

SECOND YEAR

Fall

MA 351 - Calculus III

MA 395 - Discrete Methods

Spring

MA 301 - Computational Linear Algebra

MA 304 - Differential Equations

THIRD AND FOURTH YEAR

At this point a candidate could narrow his/her focus by choosing one of the concentrations. Eight 400 - level courses are chosen in consultation with a faculty advisor. Selections depend on a candidate's mathematical interests and career goals. The content requirements for certification for mathematics majors with a minor in secondary education are a minimum of twenty-seven credits with coursework in the following areas: *Calculus I*, *Calculus II*, and *Calculus III*; *Analysis I*; *Algebra I*; *Analysis II* or *Algebra II*; *Probability and Statistics*; *Geometry*; and *Computer Science*; and four other 400 - level MA courses. The secondary education requirements are based on the Maryland State Department of Education requirements for certification in Mathematics and recommendations by faculty from the Department Mathematical Sciences and the Education Department. Candidates have their program approved by the coordinator of Teacher Education Programs.

Description of Internship: Field Experiences and Student Teaching

Candidates completing a minor in secondary education and who qualify, complete their internship in a Professional Development School (PDS).

Since the mid-80's, continuing discussions regarding educational reform at national, state, and local levels have focused on the professionalization of teaching. In 1991, the Maryland Higher Education Commission charged a blue ribbon task force with recommending a comprehensive approach to the education of teachers that combined a solid foundation of academic preparation with the most promising developments of professional practice. Recommendation 6 of the Task Force Report stated, "Every teacher candidate should do an extensive internship in a specially designed Professional Development School."

In responding to this recommendation, the Teacher Education Program at Loyola College sought to meet this goal by establishing Professional Development Schools in Baltimore City and in surrounding counties. The Professional Development School is a collaborative effort between the local school and the Education Department of Loyola College. Working within the governmental structures of the school systems and the Education Department of Loyola College, a steering committee develops, implements, and evaluates the policies and procedures related to the specific Professional Development School. The steering committee membership includes college faculty and administration, school faculty and administration, parents, business and community members, and interns.

The effectiveness of a Professional Development School depends upon the ability of those involved to fulfill their responsibilities as a collaborative working unit. It is

important that the administration in the local school and at Loyola College supports the concept and seeks resources to enable it to develop. Frequent and open communication is essential between and among the candidate, the mentor, the site-based coordinator, the PDS school coordinator, the Teacher Education Program Coordinator, the local school steering committee, and the Loyola College Steering Committee. Consequently, Loyola College only establishes these partnerships in schools where the administration and at least 80% of the school's faculty are committed to forming this learning community. Prior to the yearlong internship, candidates are engaged in fieldwork in conjunction with *Introduction to Special Education*. The candidates are required to spend 20 hours observing and volunteering in settings serving students with disabilities. Candidates spread the required hours over the semester for a minimum of eight visits in order to maximize their relationship with children and staff members. In addition to the observations, candidates maintain a reflection log, write responses to assigned questions, and discuss their experiences in class. Specific guidelines for the observations, reflection logs, written responses, and class presentation are distributed and discussed in class.

The Loyola College Secondary Professional Development School (PDS) internship is completed in two phases extended over two semesters at two sites. In the first semester, the candidate completes a sixty hour Internship I (field experience) with two mentors; thirty hours in middle school and thirty hours in high school. Internship II (student teaching) includes 16 weeks of full-time teaching at both the middle school and the high school. The Internship experience culminates with a performance-based assessment.

The Secondary Performance Assessment guidelines provide each Professional Development School (PDS) with suggested activities for the candidates during the Internship I experience. The individual PDS has the flexibility to adapt the list as needed. The experiences include but are not limited to observation in the classroom, presenting the motivation of the lesson, small group activities and teaching a full lesson. The intern takes the list of internship experiences from one placement to the next.

Internship II is a continuation of Internship I. The ultimate goal of the internship is for the candidate to assume the full teaching responsibilities of the mentor. During Internship II the candidate accomplishes this goal. The candidate teaches the fulltime schedule for an average of four to six weeks at each level (middle and high school).

Specific placement of interns with mentors is accomplished through the collaborative effort of the College Coordinator and the Site Supervisor of the Professional Development School (PDS). The mentor and candidate relationship develops through the two-semester internship. The mentor's role is to guide the professional development of the candidate through the daily experiences of planning, implementation and assessment. The College Coordinator spends a minimum of one day a week in the PDS. This time is spent working with both the mentor and the candidate. The College Coordinator in collaboration with the mentor is responsible for the formative assessment of the candidate throughout the internship experience.

The summative assessment of the internship is performance-based and designed to assess whether the candidate is prepared to practice responsibly as the primary teacher of record for students. It is a holistic approach that integrates knowledge, decision-making and actions of a teacher. Each candidate is required to complete a portfolio based on the INTASC standards. The Performance-based assessment process includes: guidelines for a unit plan(s) and lesson plan (s); observation tools to be used by administrators, mentors, and college coordinator; suggested internship activities not observed in the context of the INTASC standards; portfolio development by the candidate with the assistance of mentors and college coordinator; and concludes with a team review. The portfolio is reviewed by a team comprised of the site coordinator, college coordinator, outside evaluators and the mentors. After the team review, the team interviews the candidate and the final decision is made as to whether or not the candidate is prepared to practice responsibly as the primary teacher of record for students.

Explanation of Deviation from Program Standards.

Candidates may also pursue initial certification for Secondary Mathematics at the post-baccalaureate and Master’s level. Applicants must submit transcripts that indicate completion of a baccalaureate degree in a mathematical science from an accredited college or university with a minimum GPA of 3.0 (candidates with GPA’s between 2.75 and 3.0 may be admitted provisionally with performance stipulations for their first three courses at Loyola). If the degree is current, no additional course work is required. If the undergraduate degree in the content area in which certification is sought is more than five years old, candidates are required to earn six credits in updating. Individual transcript audits are conducted by the Department to verify that standards are met or to identify content courses that must be taken.

If a candidate whose undergraduate degree is not in a mathematical science seeks certification in mathematics, the transcript is analyzed to determine if the candidate has an adequate academic background. Additional coursework may be required before the candidate begins Internship II.

The course of studies in Education for post-baccalaureate programs is generally parallel to that of undergraduates. The table below shows how the graduate and undergraduate courses compare. Descriptions of all courses can be found in the Appendix under Courses.

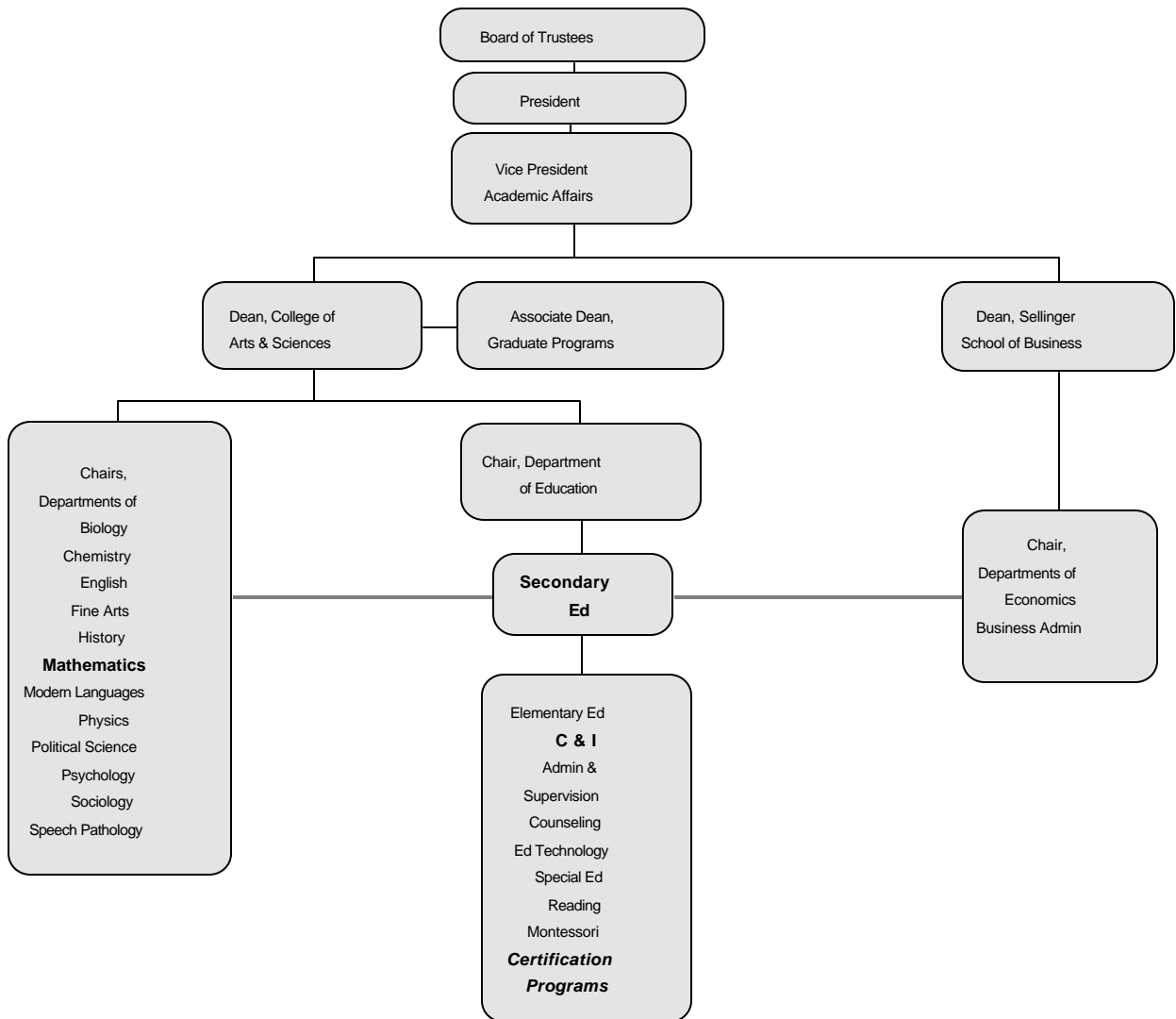
Undergraduate Course	Graduate Course
ED 301	RS 720 and Ed 621
RS 496	RS 761
ED 474	ED 810
ED 475	ED 744
ED 429	GS 550
ED 432	GS 554
ED 455	ED 612
DEDU 439	GS 554, ED 662

History of Mathematics and Geometry are not offered as individual courses at Loyola. Two and three-dimensional geometry is seen throughout the calculus sequence. The students have access to and use the computer software *Mathematica* and *Geometer's Sketchpad* in their course of studies.

Program Location

Graduates of the Secondary Mathematics Program work under the auspices of the Secondary Education Minor component of the Department of Education, which is housed in the College of Arts and Sciences (CAS). Major and core courses are taken in the appropriate departments of CAS, while Professional courses are taken in the Education Department. The following chart shows the location of the various aspects of the Program within the Loyola College Structure.

Loyola College in Maryland School Personnel Preparation Programs



Faculty

Name	Rank	Tenure	Responsibilities
Richard E. Auer, Ph.D.	Assistant Professor	T	Applied Statistics Advisor: Actuarial Science Concentration
Joseph Baker, M.S.	Instructor	N	DEDU 433
Dipa Choudhury, Ph.D.	Associate Professor	T	Linear Algebra Advisor: Operations Research
Helen Christensen, R.S.M., M.S.	Associate Professor	T	Graph Theory
Lester N. Coyle, Ph. D.	Assistant Professor	T	Stochastic Processes, Mathematical Finance, Statistical Physics
Victor Delclos, Ph.D.	Professor	T	ED 301
Peggy C. Golden, Ph.D.	Adjunct Asst. Prof.	N	ED 432
John C. Hennessey, Ph.D.	Professor	T	Mathematical Modeling, Complex Variables Advisor: Applied Math Concentration
George B. Mackiw, Ph.D.	Professor	T	Applied Abstract Algebra: Advisor: Computer Science Concentration
Richard F. McCoart, Jr., Ph.D.	Professor	T	Graph Theory Advisor: Pure Math Concentration
Christopher H. Morrell, Ph.D.	Professor	T	Applied Statistics Advisor: Statistics Concentration, Statistics Minor
Robert Peters, Ed.D.	Adjunct Asst. Prof.	N	Reading

William D. Reddy (Emeritus), Ph.D.	Professor	T	Numerical Analysis
James Roche, Jr., M.A	Assistant Professor	N	Mathematics Education, Advisor: Secondary Education Concentration, Math minor
Elana Rock, Ed.D	Associate Professor	T	RS496
Kathleen Sears, M.L.A	Instructor	N	ED429, ED432
Anne L. Young, Ph.D.	Professor	T	Number Theory Algebra Cryptography
Elizabeth J. Walters, M.S.	Instructor	N	Statistics

(Note: The faculty listed as N are clinical faculty and not in tenure-track positions)

Undergraduate and Graduate Narrative

Undergraduate and Graduate Data

Number of Graduates in Mathematics 1997-2000

Year	Undergraduate	Graduate	*Professional Growth Experience	Total
FA/97	2	1	2	5
SP/98	Not offered	1	1	1
FA/98	2	0	0	2
SP/99	0	0	2	2
FA/99	4	1	1	6
SP/00	0	0	0	0

***Professional Growth Experience**

Any candidate in the post baccalaureate program who holds a teaching position at the level/subject area that certification is being sought must do a Professional Growth Experience in place of the Internship. The experience requirements vary depending on the experience of the candidate but always include observation and mentoring by college faculty and the development of either a research project related to teaching or the development of a portfolio.

Undergraduate Program

Loyola's admission evaluation is primarily an academic review. The general guidelines are grades of B+ or higher in academic classes and class rank in the top 25% of their class. Last year, the middle 50% of enrolling students scored between 1150 and 1280 on the SAT-I, with an average of 1215. Course selection is also heavily weighted in our evaluation. These guidelines are not used as strict cutoffs; many factors are taken into account when making an informed judgement about each individual student's record. An essay and a listing of activities and honors received are required, and letters of recommendation are encouraged.

Loyola's Curriculum for secondary Mathematics certification provides a solid grounding in the liberal arts, calculus, statistics and a broad variety of courses in various other branches of mathematics, as well as a comprehensive sequence of education courses. All majors in mathematical sciences are required to complete eight 400-level courses in a selected concentration and 18 courses in the liberal arts. These courses form the Loyola College Core Curriculum and are required of all undergraduate students regardless of their major. The Core Curriculum is part of the forty courses required for graduation and contributes breadth to the content knowledge of candidates. The Core includes: three credits in composition; three credits in fine arts; six credits in literature; nine credits in math and science; six credits in history; six credits in other social sciences; six credits in foreign language; and fifteen credits in philosophy, theology and ethics. The program for mathematics candidates with a secondary education minor includes: *Analysis I*, *Algebra I*; *Analysis II* or *Algebra II*; three other advanced mathematical sciences courses.

The Education Department offers candidates majoring in mathematical sciences the opportunity to take the coursework needed to become certified to teach mathematics on the secondary level in Maryland. The Education requirements include *Educational Psychology*, *Introduction to Special Education*, *Teaching Reading in the Content Area* (2 courses), *General and Mathematics Methods of Teaching*, and *Internship* (Internship I and II). Through coursework in *Educational Psychology*, candidates learn to appreciate the theoretical complexity of teaching and learning and to develop conceptual tools for working with students by thinking critically about and discussing various issues related to learning in and out of schools. They learn to articulate a clear theory of learning and motivation based on current research and theory and to apply it to their own area of teaching. This is accomplished by learning and understanding various behavioral, cognitive, and humanistic views of learning and motivation and how strategies based on these theories are used in working with students. Candidates begin to understand individual differences (e.g. intelligence, culture, and disability) as they relate to teaching and learning. They come to know and recognize appropriate uses of educational psychology principles in order to plan more effectively for classroom teaching and to understand the development and use of standardized tests in education and to critically evaluate their use. Candidates also develop skills related to professional reading, reflection, observation, decision-making, and self-evaluation.

In the Special Education course, candidates are provided with a basic understanding of special educational, the diverse learner, and assessment and instructional strategies for adolescents with special needs. Candidates are expected to be able to identify and describe major philosophies, theories and trends in the field of special educational. For each area of disability, candidates become familiar with general information on physical and psychological characteristics, incidence and etiology, diagnostic and therapeutic services, interventions and educational programs, technology, and findings of recent research. Candidates demonstrate an understanding of issues related to the assessment, identification and placement of students with various exceptionalities. In addition, candidates are expected to identify federal laws and regulations relative to rights and responsibilities, student identification and delivery of services.

In both *Secondary Methods of Teaching* and *Methods of Teaching Mathematics* courses, candidates are expected to create unit plans in mathematics that are consistent with Maryland Core Learning Goals. Within the context of the unit plan, they develop daily lessons that utilize a variety of teaching strategies and methods of assessment in order to create positive classrooms environments conducive to safety and student learning. They focus on establishing objectives that are measurable and in keeping with national and state guidelines for mathematical knowledge. They consider Dimensions of Learning, teaching and learning styles, questioning techniques, and gender and ethnic issues relative to classroom instructional. The candidates come to an understanding that organization and comprehensive planning are the basis for effective classroom management.

Undergraduate Professional Course of Study

Cr.	Course #	Title
<u>Sophomore Year</u>		
3	ED 301	Educational Psychology
3	RS 496	Introduction to Special Education
<u>Junior Year</u>		
3	ED 474	Introduction to Teaching Reading in the Content Area
3	ED 475	Teaching Reading in the Content Area II
1	ED 432	Internship I: Field Experience in Education
<u>Fall Semester Senior Year</u>		
Taken at Loyola		
3	ED 429	Secondary School Methods of Teaching
10	ED 454	Internship II Student Teaching: Mathematics
Taken at the College of Notre Dame of Maryland		
4	DEDU 433	Methods of Teaching Mathematics
30 <u>Total Credits</u>		

To be certified as a mathematics teacher in Maryland through Loyola College, candidates must complete all content course requirements and professional education coursework. The professional coursework for the minor in secondary education is taken in place of electives. The undergraduate mathematical sciences major - secondary minor program is designed for candidates seeking a career in mathematics education at the secondary level. Upon graduation, the candidate receives a Bachelor of Arts Degree in mathematical sciences and a minor in secondary education.

Graduate Program

Candidates admitted to a post-baccalaureate program are required to have an undergraduate GPA of 3.00. If a candidate's GPA is below 3.0 but not lower than 2.75 he or she may be considered for provisional acceptance. Provisional acceptance requires candidates to take three specific courses and receive a B or better in each course before full acceptance is granted.

Candidates with a degree in the content area of certification within the last five years need no additional content courses. Candidates with degrees older than five years need six credits of content update. When a candidate seeks certification in a content area other than that of the undergraduate degree, the candidate's transcript is analyzed to determine if the candidate has an adequate academic background. If previous content coursework does not meet requirements, additional work is required before the candidate begins the second phase of the internship.

The content requirements for certification in Mathematics are a minimum of twenty-seven credits with coursework in the following areas: *Calculus I, II and III; Linear and Abstract or Modern Algebra; Probability and Statistics; Geometry; and Computer Science*. These content requirements are based on the Maryland State Department of Education requirements for certification in Mathematics and recommendations by faculty from the Mathematical Sciences and Education Departments.

The professional course of studies in Education for post-baccalaureate candidates is generally parallel to that of undergraduate candidate. The table below shows how the graduate and undergraduate courses compare. Descriptions of all courses can be found in below the course comparison.

Undergraduate Course	Graduate Course
ED 301	RS 720 and ED 621
RS 496	RS 761
ED 474	ED 810
ED 475	ED 744
ED 429	GS 527
ED 432	GS 550
ED 455	ED 612
DEDU 439	ED 662

Course Descriptions - Undergraduate

MA110 Introduction to Statistical Methods and Data Analysis (3.00 cr.)

Prerequisite: MA004 or a score of 13 or better on Part I of the Math Placement Test. Restricted to humanities and social science majors. Extraction of information from data using graphical methods, cross tabulations, and computer packages. Statistical methods are motivated through real data sets and projects. Topics include measures of central tendencies and dispersion, chi-squared tests, regression, normal distributions, and sampling.

MA 210 Introduction to Statistics (3 .00 cr.)

Prerequisite: A score of 13 or better on Part II of the Math Placement Test. Involvement with real data, statistical computer routines, applied statistical methodology and data analysis; estimation and tests of hypothesis bring out the applied and problem-solving nature of statistics. Descriptive statistics, normal and sampling distributions, and regression analysis help create a course geared toward conducting research and planning experiments.

MA251 Calculus I (3.00 cr.)

Prerequisite: MA109 or a score of 13 or better on Part II of the Math Placement Test. Definition, interpretation, and applications of the derivative; definition and interpretation of the integral. Every concept is considered graphically, numerically, and algebraically. A computer algebra system and graphing calculator are used to illustrate concepts, address more complicated problems, and do computer projects. No prior computer experience is necessary.

MA252 Calculus II (3.00 cr.)

Prerequisite: MA251. A continuation of MA251. Antiderivatives; applications of the integral; differential equations; Taylor and geometric series. Every concept is considered graphically, numerically, and algebraically. A computer algebra system and graphing calculator are used to illustrate concepts, address more complicated problems, and do computer projects. No computer experience necessary.

MA301 Computational Linear Algebra (3.00 cr.)

Prerequisite: MA152 or MA252. Solutions of systems of linear equations, algebra of matrices, determinants, vector spaces, linear independence, basis and dimension, linear transformations, eigenvalues, diagonalization. Applications may include Markov chains, least squares, input-output analysis, computer graphics. Matrix computation is stressed.

MA304 Differential Equations (3.00 cr.)

Prerequisite: MA252. First order equations, exact equations, existence and uniqueness, numerical methods, the linear algebra of the solution set of higher order equations, constant coefficient equations, series solutions, systems of equations, qualitative analysis. Model building is stressed.

MA351 Calculus III (3.00 cr.)

Prerequisite: MA252. A continuation of MA252. Functions of several variables using surface graphs, contour diagrams, and tables; vectors; partial derivatives and multiple integrals; parametric curves. Every concept is considered graphically, numerically, and algebraically. A computer algebra system and graphing calculator are used to illustrate concepts, address more complicated problems, and do computer projects. No computer experience necessary.

MA395 Discrete Methods (3.00 cr.) Prerequisite: MA252. The logic of compound statements, sequences and mathematical induction, set theory, counting arguments, recurrence relations, permutations, and combinations. An introduction to graph theory including Euler and Hamiltonian circuits and trees. Applications may include analysis of algorithms and shortest path problems. Problem solving is stressed

MA421 Analysis I (3.00 cr.)

Prerequisite: MA301 or MA395, MA351. A rigorous development of topics in calculus. Topology of the real line, theory of limits, theory of differentiation of functions of one variable, infinite series.

MA422 Analysis II (3.00 cr.)

Prerequisite: MA421. A continuation of MA421. Theory of integration of functions of one variable, improper integrals, functions of several variables.

MA441 Algebraic Structures I (3.00 cr.)

Prerequisite: MA301, MA395. An investigation of the fundamental algebraic systems of groups, rings, and fields. Homomorphisms, cosets, Lagrange's theorem, quotient structures, and symmetry groups.

MA442 Algebraic Structures II (3.00 cr.)

Prerequisite: MA441. A continuation of MA441. Topics drawn from Sylow theory, ring theory, Galois theory, field extensions, and finite fields. May include applications from combinatorics, computing and coding.

Course Descriptions: Graduate

ED607 Methods of Teaching Mathematics (Secondary Level) (4.00 cr.)

Presents the general theory of education as applied to mathematics. Introduces current research and teaching methods related to respective discipline.

ED612 Secondary Methods of Teaching (3.00)

Introduces students to the general concepts required for teaching at the secondary level. Includes objectives of secondary education, classroom management, individual differences, unit and lesson planning, instructional techniques and assessment.

ED621 Learning Theory (3.00 cr.)

An examination of the various interpretations of the learning process. Includes historical perspectives but focuses on current research and developments in the field. Emphasis on assisting educators in deciding on instructional strategies.

ED662 Assessment for the Classroom: Models, Techniques, and Procedures

Explores effective models, techniques and procedure for comprehensive classroom assessment. Participant develop an understanding of interactive processes as ways for students to construct meaning, be involved in problems solving approaches, and apply higher level thought processes. In designing instructional tasks for classroom learning, participants examine the use of student-developed criteria and student constructed projects as a focus for developing self-directed learners.

GS527 Internship I - Field Experience (Secondary) (1.00)

During the field experience, the student shall keep a log which includes three sections: explanation of what he/she did and his /her reflection on the experience: description of actual classroom management strategies used by teachers; summary and critique of three book chosen from a list of books distributed by the Education Department.

GS550 Internship II - Student Teaching: Mathematics (8.00 cr.)

An opportunity for students to translate academic theory into practice. Students will practice-teach for a minimum of six weeks under the supervision of a college supervisor and experienced classroom teacher.

RS720 Human Growth and Development (3.00 CR.)

Biological and psychological perspectives which contribute to the normal development of the child. Particular attention paid to prenatal growth and development; cognitive, language, and moral development; sex roles; and socialization.

RS761 Introduction to Special Education (3.00 cr.)

Historical, philosophical, and legal foundations of educational programs for students with special needs; current trends and issues related to delivery of services to special students.

RS811 Foundations of Reading Instruction (Focus: Grades 1-8) (3.00 cr.)

A basic course in reading. Lectures and demonstrations constitute course procedures. Emphasizes evaluation techniques, reading approaches, word recognition and analysis procedures, comprehension abilities, and current trends.

RS744 Reading, Writing, and Study Skills in the Content Area (3.00 cr.)

Designed for teachers of content subjects. Provides an application of current theory and research into the teaching of reading, writing, and study skills to the classroom situation. Through the development of assessment techniques and awareness of individual differences of students, teachers develop a knowledge base that allows for the teaching of various strategies necessary for the understanding of content material.

Matrix

OUTCOMES MATHEMATICS IN INITIAL PROGRAMS FOR 7-12 MATHEMATICS TEACHERS

A high school background of 4 years of mathematics, including the equivalent of Pre-Calculus, is assumed. The equivalent of a college major in mathematics should provide for the successful completion of the outcomes listed below.

Please list the mathematics requirements, including the course number and title, for prospective teachers preparing to teach mathematics in grades 7-12.

Course Number	Course Title	No. of Hours
MA 110	Introduction to Statistics and Data Analysis	3 credits
MA210	Introduction to Statistics	3 credits
MA251	Calculus I	3 credits
MA252	Calculus II	3 credits
MA301	Computational Linear Algebra	3 credits
MA304	Differential Equations	3 credits
MA351	Calculus III	3 credits
MA395	Discrete Methods	3 credits
MA421	Analysis I	3 credits
MA441	Algebraic Structures	3 credits

Please list the mathematics methods requirements, including the course number and title, for teacher candidates preparing to teach mathematics in grades 7-12.

Course Number	Course Title	No. of Hours
ED429	Secondary Methods of Teach.	3 credits
DEDU433	Methods of Teach. Second. Math	4 credits
ED 432	Internship Internship I	1 credit
ED 454	Internship Internship II	10 credits

Mathematics Preparation

The Four Themes: Problem Solving, Reasoning, Communication, and Connections are four overriding themes that should permeate all mathematics programs. Although these four areas are inherently interrelated, for the purpose of this review you are asked to explicate how each of these areas is incorporated into your teacher preparation program.

1.1 Problem solving: Submit a narrative that describes how the requirements of your program provide opportunities for your candidates to mature in their problem solving abilities.

The Calculus sequence is taught using the Rule of Four. All topics are presented graphically, algebraically, numerically and the student is also required to use verbal/written skills to explain the concepts. MA251, MA252, MA301, MA351

In several courses there is a designated "Problem Day". The faculty member chooses the problems to be solved and candidates are expected to have thoughts on the solving of the problem. MA251, MA252, MA301

The focus in MA421: Analysis I includes the proving of theorems by using a variety of methods and ideas. This new knowledge is applied to problem solving.

1.2. Reasoning: Submit a narrative that describes how the requirements of your program provide opportunities for your candidates to make and evaluate mathematical conjectures and arguments, and to validate their own mathematical thinking.

Statistics is the science that deals with the methods of collecting, organizing, and summarizing data in such a way that valid conclusions can be drawn from them. Candidates are required to take Introduction to Statistical Methods and Data Analysis; Introduction to Statistics; Calculus I, Calculus II, and Calculus III; and Analysis I. In the statistics, calculus and analysis courses, candidates have opportunities select a random sample, use estimation techniques, make predictions, collect and analyze data use numerical and graphical descriptive techniques to summarize sample data, and use statistical reasoning to interpret the results.

The course Methods of Teaching Mathematics in the Secondary School requires students to examine, reflect upon, and discuss the nature of Mathematics, the modes of thinking, the key questions with which the subject deals, and the methods through which knowledge is added, challenged, and tested in the discipline.
MA210, MA251, MA252, MA351, MA421, DEDU433

1.3. Communication: Submit a narrative that describes how the requirements of your program provide opportunities for your candidates to use both oral and written discourse between teacher and candidates and among candidates to develop and extend candidates' mathematical understanding.

As part of the requirements in all courses, the students work on projects in groups of two or three. Using computer software like Derive and Mathematica, the students have both long and short-term projects. Group work is strongly encouraged in **all courses**.

1.4. Connections: Submit a narrative that describes how the requirements of your program provide opportunities for your candidates to demonstrate an understanding of mathematical relationships across disciplines and connections within mathematics.

We believe that mathematics is a profound part of our culture, a science of pattern and order that help us understand the world around us. The introduction to statistics is a problem-focused approach

The opportunity to experience mathematics in context is important. Students should connect mathematical concepts to their daily lives, as well as to situations from science, the social sciences, medicine, and commerce. For example, high school students worked with a drug store chain to determine where it should locate a new pharmacy in their neighborhood on the basis of analyses of demographic and economic data. Students should recognize the value of mathematics in examining personal and societal issues.

Mathematics is a profound part of the culture, a science of pattern and order that helps in understanding the world around us. Candidates are asked to write about their ideas. Being able to read and write about technical issues is important. In a number of courses, they apply mathematical learning to real life situations. DEDU433 Methods of Teaching Mathematics in the Secondary School requires the candidate to incorporate techniques for teaching reading, writing, and thinking across the curriculum. An initial object for this methods course is to examine the place of Mathematics as it relates to the secondary school curriculum.

From the first course in education through the Internship, the candidate is called to be a reflective practitioner. Part of the reflective process challenges the candidate to see the interconnectedness of the school community, curriculum, and community at large. MA210, DEDU433

7-12 Outcomes	Evidence: performance data, experiences, courses
1.5 Programs prepare prospective teachers who can --	
1.5.1 apply concepts of number, number theory, and number systems;	
1.5.2 apply numerical computation and estimation techniques and extend them to algebraic expressions;	MA 251, MA 252, MA 351,
1.5.3 apply the process of measurement to two- and three-dimensional objects using customary and metric units;	MA 351
1.5.4 use geometric concepts and relationships to describe and model mathematical ideas and real-world constructs;	MA 351
1.5.5 understand the major concepts of Euclidean and other geometries;	MA 351
1.5.6 use both descriptive and inferential statistics to analyze data, make predictions, and make decisions;	MA 110, MA 210
1.5.7 Understand the concepts of random variable, distribution functions, and theoretical versus simulated probability and apply them to real-world situations;	MA 210, MA252
1.5.7 Understand the concepts of random variable, distribution functions, and theoretical versus simulated probability and apply them to real-world situations;	MA 210, MA252
1.5.8 use algebra to describe patterns, relations, and functions, and to model and solve problems;	MA 301

1. 5.9 Understand the role of axiomatic systems and proofs in different branches of mathematics, such as algebra and geometry;	MA 441
1. 5.10 have a firm conceptual grasp of limit, continuity, differentiation and integration, and a thorough background in the techniques and application of calculus;	MA 441
1. 5.11 have a knowledge of the concepts and applications of graph theory, recurrence relations, linear programming, difference equations, matrices, and combinatorics;	MA 301, MA 395
1. 5.12 use mathematical modeling to solve problems from fields such as natural sciences, social sciences, business, and engineering;	MA 110, MA 210, MA 252 ,MA304 ,MA351, MA 251
1. 5.13 understand and apply the concepts of linear algebra;	MA 301
1. 5.14 Understand and apply the major concepts of abstract algebra;	MA 441
1. 6 Programs prepare prospective teachers who have knowledge of historical development in mathematics that includes the contributions of underrepresented groups and diverse cultures.	DEDU 433

Integrated Essential Outcomes

Certain essential outcomes within a program preparing teachers of mathematics are integrated throughout the program. Such outcomes include teaching diverse learners, the appropriate use of technology, and the alignment of assessment and instructional practices.

For each of these outcomes, respond in narrative form describing how candidates attain these outcomes in your mathematics education program. For each outcome: include specific experiences that promote the outcome and describe how you measure its attainment; and describe the process that establishes connections among these experiences. Describe how your program, both in mathematical and pedagogical contents, enables your candidates to gain experience that helps them to achieve this outcome.

2.1. Diverse Learners

Teachers of mathematics use their knowledge of student diversity to affirm and support full participation and continued study of mathematics by all students. This diversity includes gender, culture, ethnicity, socioeconomic background, language, special needs, and mathematical learning styles.

In both ED474 - Foundations of Reading and ED301 - Educational Psychology, candidates are formally introduced to the research on varied learning styles. In ED429 - Methods of Teaching Secondary School the candidates explore differences in middle and high school students as well as implications of Howard Gardner's theory on Multiple

Intelligences, specifically mathematical/logical. Exams, projects and reflections are indices of the attainment of the knowledge base to be applied in the classroom. The primary assessment of the candidates' knowledge in each area is the application in unit plan and lesson plans and in the creation of a positive learning environment.

As noted in the objectives for DEDU 433 Methods of Teaching Mathematics in the Secondary School, the candidates recognize, value, and plan for gender differences, diversity of socio-cultural experiences, and for learning styles of individual students. They are challenged to observe and interpret adolescent behavior and the interaction of teachers and students in classes and in a variety of school environments. The candidates have a yearlong internship at two different levels, middle school and high school. The Professional Development Schools are located in both urban and suburban settings with differing socio-economic status. During the final performance-based assessment process, candidates are required to document how they meet the INTASC standards. Standard three and seven specifically address the issue of diversity. MA210, MA251, MA252, MA304, MA351, DEDU433, ED301, ED429, ED432, Internship II
ED475, RS496, Performance Based Assessment/INTASC Standards

2.2. Technology

The Instructional Technology (IT) office is part of Information Services and exists to support Loyola College in the use of technology to enhance the learning environment. The five main points of focus within IT are classroom technology, distance learning, multi-media and presentations, online course materials and development, and web technologies. Hardware applications, connectivity, and support are available for any learning activity. Loyola College has achieved national recognition in the area of technology resources. We were ranked 53rd in the nation among Yahoo's most wired colleges and universities.

Teachers of mathematics use appropriate technology to support the learning of mathematics. This technology includes, but is not limited to, computers and computer software, calculators, graphing calculators, interactive television, distance learning, electronic information resources, MATLAB Version 5, MATHMATICA Version 3 or 4, and a variety of relevant multimedia. MA110, MA210, MA251, MA252, MA301, MA304, MA351, DEDU433, ED301, ED429, Internship I, Performance Based Assessment/INTASC Standards

2.3. Assessment

Teachers of mathematics use formative and summative methods to determine students' understanding of mathematics and to monitor their own teaching effectiveness. Teachers are careful to align their instructional and assessment practices.

Teachers use formative assessment to monitor student learning and to adjust instructional strategies and activities. Formative assessment includes, but is not limited to, questioning strategies, student writing, student products, and student performance.

Teachers use summative assessment to determine student achievement and to evaluate the mathematics program. Summative assessment includes, but is not limited to, teacher-designed tests, criterion-referenced tests, norm-referenced tests, portfolios, projects, and other open-ended student products.

In ED419 - Foundations of Reading and Language Arts candidates are provided with a basic understanding of administering, scoring and interpreting formal and informal assessments and a basic understanding of comparing/ contrasting norm referenced and criterion referenced assessments.

ED 301 - Educational Psychology, the candidates learn about the varied assessment strategies, their description, application, and the need for reliability and validity.

In ED429 - Methods of Teaching in Secondary Schools, candidates learn to apply this knowledge in order to create summative and formative assessments including but not limited to classroom questioning techniques, rubric development, pre and post assessment, teacher-designed tests, and performance-based assessments. During the yearlong internship in a professional development school, candidates learn to review data from these assessments in order to modify subsequent instruction. These skills are honed in seminars held on-site as part of the internship.

Candidates are provided with the Maryland State Department of Education Core Learning Goals for Mathematics. Through their coursework and knowledge of national/state standards, candidates realize the importance of aligning teaching and assessment strategies. Candidates demonstrate acquisition and application of these skills in the presentation of their portfolios at the completion of the internship. INTASC standards four and eight specifically address assessment.

DEDU433, ED301, ED429, ED432, ED475, RS496, Internship I, Performance Based Assessment/INTASC Standards

7-12 Outcomes	Evidence: performance data, experiences, courses
2.4 Programs prepare prospective teachers who can identify, teach, and model problem solving in grades 7-12.	ED429, ED 432, ED 454 DEDU 433 ED 475 Performance based assessment/INTASC
2.5 Programs prepare prospective teachers who use a variety of physical and visual materials for exploration and development of mathematical concepts in grades 7-12.	ED 429 ,ED432 ,ED 454 DEDU 433 Performance based assessment/INTASC
2.6 Programs prepare prospective teachers who use a variety of print and electronic resources.	ED 429 ,ED 432 ,ED 454 DEDU 433, Internship II
2.7 Programs prepare prospective 7-12 teachers who know when and how to use student groupings such as collaborative groups, cooperative learning, and peer teaching.	ED 429, ED432,ED 454, ED475 Internship I
2.8 Programs prepare prospective teachers who use instructional strategies based on current research as well as national, state, and local standards relating to mathematics instruction.	ED 429 ; ED 432, ED454 DEDU 433, ED 301

2.9 Programs prepare prospective teachers who can work on an interdisciplinary team and in an interdisciplinary environment.	ED 429 ,ED 432, ED454 DEDU 433
2.10 Programs introduce and involve prospective teachers in the professional community of mathematics educators.	DEDU 433
3.0 FIELD-BASED EXPERIENCES	
3.1 Programs provide prospective teachers with a sequence of planned opportunities prior to student teaching to observe and participate in 7-12 mathematics classrooms with qualified teachers. Experiences include observing, tutoring, mini-teaching, and planning mathematics activities and lessons for different mathematics courses.	ED 429,ED 432,DEDU 433
3.2 Programs provide prospective teachers with a full-time student teaching experience in 7-12 mathematics that is supervised by a qualified teacher and a university or college supervisor with a 7-12 mathematics teaching experience.	ED 454
3.3 Programs provide prospective teachers with time to confer with the supervising teacher and to do instructional planning.	ED 454

Note to Reviewers: Documents that provide evidence supporting each standard are noted within the matrices. The page number of the appendices on which it begins, contained in follows each referenced document (). The location of each specific supporting reference within the document is marked in red on the document itself.

Syllabi

MA 110 SYLLABUS -Introduction to Statistical Methods and Data Analysis (1.5.7)

GRADING 3 Midterm Exams (15% of the grade each)

Cumulative Final Exam (20%)

Homework due weekly on Monday at the beginning of class (20%)

Project (10%)

Computer Assignments (5%)

HONOR CODE "I understand and will uphold the ideals of academic honesty as stated in the Honor Code."

If you have a disability which is documented with the Disability Support Services Office and wish to discuss academic accommodations with me, please contact me as soon as possible.

TEXT Selected Chapters from Statistics: The Exploration and Analysis of Data, Jay L. Devore and Roxy Peck, 1997.

SECTIONS COVERED

Ch.1 1 -3 Role of Statistics

Ch.2	1 -4	Data Description (Tabular and Pictorial)
Ch.3	1- 3	Data Description {Numerical Summaries)
Ch.6	3	Population Distributions: The Normal Distribution
Ch.4	1 -4	Data Description (Bivariate Data)
Ch.14	1, 2	Analysis of Categorical data

You are responsible for the material covered in class. Some material in the book may be omitted and extra material may be included. Thus, it is very important that you attend class.

After each class you should review the material covered before the next class and work on the

assigned problems that relate to the material already covered.

ASSIGNMENTS

Assignments must be on 8 1/2 x 11 paper- ragged paper torn from notebooks is unacceptable.

Assignments must be stapled. If they are not, only the first page will be graded. Not all assigned problems will be graded. Thus, it is important that you attempt all assigned problems. Note that homework counts 20% of the course grade. Thus, to do well, you should work consistently throughout the semester.

You must do the homework by yourself. You may not "WORK WITH" another student on the homework. If I find that students are copying work, all students included will be penalized. Late homework is not accented. The lowest homework score is dropped.

Computer assignments: Only relevant output must be handed in and the assignment must be stapled. For computer assignments only, you may work in groups of up to three students, if you wish. The purpose of the team is to interact, not divide the work and staple it together. For assignments that allow group work (the computer assignments and final computer project) the group will submit one report for the assignment. **(2.2)**

EACH GROUP IS TO WORK INDEPENDENTLY!

Violations of this rule are considered to be an honor code violation.

On each group assignment the following statement must appear on the front page and signed by all team members:

"We and we alone worked on this assignment/project." **(1.3)**

This implies two things:

1. We worked on this assignment/project: Each one signing the statement is agreeing to the fact that all of the team members did significant work on the project.
2. We alone worked on this assignment/project: No one else but the team members (and possibly me) contributed any work to this assignment. No one on the team talked about their work to anyone but each other and me. If you do not agree with both of these statements, DO NOT SIGN THE ASSIGNMENT. Come and see me.

ANY VIOLATIONS OF THE ABOVE WILL BE CONSIDERED CHEATING AND WILL BE DEALT WITH ACCORDINGLY! I WILL NOT ACCEPT AN

ASSIGNMENT, WHICH DOES NOT HAVE THIS STATEMENT AND SIGNATURES VISIBLE ON THE FRONT PAGE.

OBJECTIVES:

Statistics is the science that deals with the methods of collecting, organizing, and summarizing data in such a way that valid conclusions can be drawn from them. We will mainly look at ways of organizing and investigating various types of data while keeping the context of the problem in mind. **(1.2)**

By the end of the semester, you should be able to:

1. Be able to select a random sample and describe simple experimental designs.
2. Use various appropriate numerical and graphical descriptive techniques to summarize a sample of data.
3. Be able to describe relationships between numerical variables using graphical and numerical techniques. **(1.2)**
4. Understand the normal distribution and be able to compute percents of the normal population within various intervals.
5. Be able to describe relationships between categorical variables. **(1.1)**

MA 210 SYLLABUS -Introduction to Statistics

GRADING 3 Midterm Exams (15% of the grade each)
 Cumulative Final Exam (20%)
 Homework due weekly on Monday at the beginning of class (20%)
 Project (10%)
 Computer Assignments (5%)

HONOR CODE "I understand and will uphold the ideals of academic honesty as stated in the Honor Code."

If you have a disability which is documented with the Disability Support Services Office and wish to discuss academic accommodations with me, please contact me as soon as possible. **(2.1)**

TEXT Statistics: The Exploration and Analysis of Data, 3rd edition, Jay L. Devore and Roxy Peck, 1996.

SECTIONS COVERED

Ch.1 1 -3 Role of Statistics
Ch.2 1 -4 Data Description (Tabular and Pictorial)
Ch.3 1 -3 Data Description (Numerical Summaries)
Ch.4 1 -4 Data Description (Bivariate Data)
Ch.5 1 Basic Probability
Appendix Binomial Distribution

Ch.6	1 -4	Population Distributions
Ch.7	1 -3	Sampling Distributions
Ch.8	1- 4	Interval Estimation: Single Sample
Ch.9	1 -5	Hypothesis Testing: Single Sample
Ch.10	1 -4	Two Samples
Ch.14	1,2	Analysis of Categorical data
Ch.11	1 -5	Regression and Correlation: Inference (as time permits)

You are responsible for the material covered in class. Some material in the book may be omitted and extra material may be included. Thus, it is very important that you attend class.

After each class you should review the material covered before the next class and work on the assigned problems that relate to the material already covered.

ASSIGNMENTS

Assignments must be on 8 1/2 x 11 paper- ragged paper torn from notebooks is unacceptable. Assignments must be stapled. If they are not, only the first page will be graded. Not all assigned problems will be graded. Thus, it is important that you attempt all assigned problems. Note that homework counts 20% of the course grade. Thus, to do well, you should work consistently throughout the semester.

You must do the homework by yourself. You may not "WORK WITH" another student on the homework. If I find that students are copying work, all students included will be penalized. Late homework is not accented. The lowest homework score is dropped.

Computer assignments: Only relevant output must be handed in and the assignment must be stapled. For computer assignments only, you may work in groups of up to three students, if you wish. The purpose of the team is to interact, not divide the work and staple it together. For assignments that allow group work (the computer assignments and final computer project) the group will submit one report for the assignment. **(2.2)**

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If you do not agree with both of these statements, **DO NOT SIGN THE ASSIGNMENT.** Come and see me.

ANY VIOLATIONS OF THE ABOVE WILL BE CONSIDERED CHEATING AND WILL BE DEALT WITH ACCORDINGLY! I WILL NOT ACCEPT AN

ASSIGNMENT, WHICH DOES NOT HAVE THIS STATEMENT AND SIGNATURES VISIBLE ON THE FRONT PAGE.

OBJECTIVES:

By the end of the semester, you should be able to:

1. Use various appropriate graphical and numerical descriptive techniques to summarize a sample of data. **(1.2)**
2. Be able to identify the binomial and normal distributions and calculate probabilities.
3. Understand the ideas of sampling variability and sampling state and apply the Central Limit Theorem.
4. Be able to compute and interpret appropriate confidence intervals or to apply the correct hypothesis test for means and proportions in one or two samples. **(1.2)**
5. Apply chi-square tests to categorical data. **(1.2)**
6. Develop and check models for bivariate numerical data.

MA 251 Calculus I, (1.5.2, 1.5.12)

Texts: 1) "The Text": Calculus, Concepts and Contexts, by James Stewart, Brooks Cole Publishing Co., 1998

2) "Derive Manual": CalcLabs with Derive for Stewart's Calculus (Single Variable) by David Barrow et al.

3) Student Solutions Manual (Single Variable) to accompany 1). (This is optional.)

Syllabus: Chapter 1: Functions and Models **(1.2)**

Parametric curves, exponential functions, inverse functions, logarithms, models and curve fitting

Chapter 2: Limits and Derivatives

Limit laws, continuity, derivative as a function, linear approximations

Chapter 3: Differentiation Rules

Polynomials, exponential functions, product and quotient rules, rates of change, trigonometric functions, implicit, logarithmic

Chapter 4: Applications of Differentiation **(1.4)**

Related rates, maximum-minimum values, shapes of curves, indeterminate forms, optimization, Newton's method, antiderivatives

(1.1)

Homework problems: The emphasis in this course will be on problem solving and applying mathematics to new situations. It is important that you attempt each and every assigned problem. Some may appear at first to be impossible; it is important that you not give up too early. Additionally, in many cases there will be more than one approach, which will lead to a solution. In some cases, there will be no one "right answer." Like many mathematics books, your text does not have all the answers in the back of the book. It is important that you begin to develop ways to decide whether or not your work is correct. Possible approaches include solving the problem another way, checking your work and comparing answers with a classmate. However, to help you make the transition, the Student Solutions Manual, which contains worked-out solutions to all odd numbered problems in the text, is available in the bookstore. Note that purchase of this is optional.

Problem Day: At times we will have "Problem Day." On this day, the majority of the class time will be spent discussing homework problems. The date and assignment for each Problem Day will be announced ahead of time. There will be an opportunity for you to ask questions; also, I will at times select the problems, which we will discuss. Thus you should be prepared to say something about each assigned problem. **(1.1)**

Turn-in exercises: There will be frequent out-of-class exercises. Late exercises will be assessed a penalty and will not be accepted after the assignment has been discussed in class.

Team project: There will be a team project focusing on an application of calculus. Details will be given later. **(1.3)**

Computer lab work: Many homework problems and turn-in exercises will require the use of a graphing program and/or a computer algebra system. In order to ensure continuity among courses, the faculty members of the Mathematical Sciences Department have agreed that all calculus students will be introduced to a computer program called Derive, available in the Math Lab. This program will often be used for classroom demonstrations; it's also available on the College network. Consequently, there will be exercises for which you must use Derive. No prior computer experience will be assumed. You will learn what you need to know as we go along and from classroom demonstrations. We have selected Derive, in part, because it is easy to learn and to use. The CalcLabs with Derive manual can be used as a reference for Derive. Unless you are specifically told that you must use Derive, you are free to use any program that you have access to and know how to use. You may also use a graphing calculator. **(2.2)**

Calculator: You will need a graphing calculator for our course. If you do not have a graphing calculator, you should purchase or borrow one immediately. Any graphing calculator is acceptable, with the various TI models very popular and recommended. **(2.2)**

Group work: Cooperative learning will play a role in this course. For example, turn-in exercises and computer lab assignments will at times be done in teams. In addition, I encourage you to work with others on homework problems. **(1.3)**

Prerequisites: This course requires a basic knowledge of pre-calculus (algebra, some trigonometry, and material on functions and graphing). No prior knowledge of calculus is assumed or expected, nor is any prior computer or calculator experience required. If, perchance, you had some calculus in high school, it may be the case that the method of presentation, style, and expectations of this course differ markedly from your earlier one. Be aware of this: do not be lulled into a false sense of security.

Attendance and class participation: A portion of class time will be devoted to non-lecture activities. This may include small group work, discussion of homework and consideration of new problems. Consequently, you are expected to be an alert and active participant in each and every class. Of course, it is understood that if you are ill or have an unexpected

emergency, you will not be in class. But those should be infrequent occurrences. If you do have to miss a class, you need not offer an excuse. **(1.3)**
Attendance may at times be taken and late arrivals will also be noted.

Disability: If you have a disability which is documented with the Disability Support Services Office and wish to discuss academic accommodations with me, please contact me as soon as possible. **(2.1)**

Make-up tests: The final exam, which is comprehensive, is the universal make-up test. If you miss a test for a good reason, those points will be moved to the final. The only exception to the no make-up policy will be for students who must miss a test because of a school-sanctioned event; for example, an athlete who will be traveling with the team may arrange to take the test ahead of time.

MA 252 Calculus II, 1.5.2; 1.5.7; 1.5.12

Texts: 1) "The Text": Calculus, Concepts and Contexts, by James Stewart, Brooks Cole Publishing Co., 1998

2) "Derive Manual": CalcLabs with Derive for Stewart's Calculus (Single Variable) by David Barrow et al. **(2.2)**

3) Student Solutions Manual (Single Variable) to accompany 1). (This is optional.)

Syllabus: Chapter 5: Integrals

Areas, distances, the Definite Integral, Fundamental Theorem of Calculus, integration by parts, tables, CAS, approximation integration, improper integrals

Chapter 6: Applications of Integration

Volumes, arc length, average value of a function, probability **(1.4)**

Chapter 8: Infinite Sequences and Series

Integral, Comparison, estimating sums, Opower series, Taylor and Maclaurin series, Binomial series

Homework problems: The emphasis in this course will be on problem solving and applying mathematics to new situations. **(1.1)**

It is important that you attempt each and every assigned problem. Some may appear at first to be impossible; it is important that you not give up too early. Additionally, in many cases there will be more than one approach, which will lead to a solution. In some cases, there will be no one "right answer."

Like many mathematics books, your text does not have all the answers in the back of the book. It is important that you begin to develop ways to decide whether or not your work is correct. Possible approaches include solving the problem another way, checking your work and comparing answers with a classmate. However, to help you make the transition, the Student Solutions Manual, which contains worked-out solutions to all odd numbered problems in the text, is available in the bookstore. Note that purchase of this is optional.

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Prerequisites: This course requires a basic knowledge of pre-calculus (algebra, some trigonometry, and material on functions and graphing). No prior knowledge of calculus is assumed or expected, nor is any prior computer or calculator experience required. If, perchance, you had some calculus in high school, it may be the case that the method of presentation, style, and expectations of this course differ markedly from your earlier one. Be aware of this: do not be lulled into a false sense of security.

Attendance and class participation: A portion of class time will be devoted to non-lecture activities. This may include small group work, discussion of homework and consideration of new problems. Consequently, you are expected to be an alert and active participant in

each and every class. Of course, it is understood that if you are ill or have an unexpected emergency, you will not be in class. But those should be infrequent occurrences. If you do have to miss a class, you need not offer an excuse. **(1.3)**

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MA 301: Computational Linear Algebra, 1.5.8; 1.5.11; 1.5.13

Texts:

- a) Penney, Linear Algebra -Ideas & Applications, J. Wiley, 1998
- b) Leon, Herman, Faulkenberry, ATLAST, Computer Exercises for Linear Algebra, Prentice Hall
- c) Penney, Student Resource Manual, J. Wiley

Technology:

1) A GRAPHING CALCULATOR is required for the course. **(2.2)**

2) MATLAB, Version 5, a computer program should be available in the MathLab, KH473, and in the generic computer lab next door. **(2.2)**

NOTE: You will be required to bring your textbook and your graphing calculator to every class. You will be required to bring your graphing calculator to every test. **(2.2)**

What's New:

The course follows the RULE QF THREE. This means that all concepts are discussed algebraically, numerically, and graphically. You are expected to grapple with all three aspects of linear algebra. There is a fourth rule: Writing. You will be asked to write about your ideas. This will help you clarify your thoughts about calculus concepts. There is a fifth rule: Reading. You will be asked to read some mathematics on your own. Being able to read and write about technical issues is important. **(1.3, 1.4)**

Homework:

I will designate a day, about every fourth class, as PROBLEM DAY. I will choose problems to discuss on PROBLEM DAY and I will expect each of you to have some thoughts on the assigned problems. Even if you can't figure a problem out I will ask you to tell me what you tried to do so we can understand what works and what doesn't. **(1.1)**

You are responsible for ALL assigned problems, whether discussed or not! If I don't say anything, a homework assignment is not to be handed in.

Do it in a notebook and bring it with you on PROBLEM DAY so that you can refer to it and write in it as we discuss the homework.

As the semester progresses, I will be setting up teams to do homework. Each team will submit one report. Everyone on the team will receive the same grade. You are responsible for understanding ALL of the team work which is assigned. You will be tested on it on the exams. **(1.3)**

Course Content:

We will cover the whole text, Chapters 1 through 6. We will skip some of the subsections of some chapters. I plan on following the early eigenvalues sample syllabus, as described on page xi in your text. But, sometimes, the sample syllabi are too ambitious. We will see.

MA 304 DIFFERENTIAL EQUATIONS, (1.5.12)

TEXT: Boyce & DiPrima, Elementary Differential Equations, 6th Edition, Wiley, 1997.
_ADVANCE \x0_Coombes, et al, Differential Equations with Mathematica, 2nd Edition, Wiley, 1998.

Calculators: A Graphing Calculator is required. **(2.2)**

GRADING:	3 Tests 300 pts	60%
	Homework & projects 75 pts	15%
	Final Exam 125 pts	25%

Make-up Policy: If you miss a test for a serious reason, the points for that test will be moved to the final exam, which will cover that material as well as all of the other material. If you miss the test for a non-serious reason, you will receive a 0.

If you have a disability which is documented with the Disability Support Services Office and wish to discuss academic accommodations with me, please contact me as soon as possible. **(2.2)**

SYLLABUS:

Chapter 1	Introduction
Chapter 2	First Order Differential Equations
Chapter 3	Second Order Linear Equations
Chapter 4	Higher Order Linear Equations
Chapter 5	Series Solutions of Second Order Linear Equations
Chapter 8	Numerical Methods

HONOR CODE:

The Honor Code states that all students of the Loyola Community have been equally entrusted by their peers to conduct themselves honestly on all academic assignments. The students of this College understand that having collective and individual responsibility for the ethical welfare of their peers exemplifies a commitment to the community. Students who submit materials that are the products of their own mind demonstrate respect for themselves and the community in which they study. All outside resources or information should be clearly acknowledged. If there is any doubt or question regarding the use and documentation of outside sources for academic assignments, your instructor should be consulted. The Honor Council will handle any violations of the Honor Code.

Pledge: "I understand and will uphold the ideals of academic honesty as stated in the Honor Code".

MA351: Calculus III, (1.5.2; 1.5.3; 1.5.5; 1.5.12)

Texts:

- a) Required: Stewart, *Multivariable Calculus: Concepts and Contexts*, Brooks/Cole, 1998
- b) Required: Hollis, *CalcLabs with Mathematica for Stewart's Multivariable Calculus: Concepts and Contexts*, Brooks/Cole, 1998, paperback
- c) Optional: Clegg, *Student Solutions Manual*, Brooks/Cole, 1998, paperback

Technology:

- 1) A GRAPHING CALCULATOR is required for the course. We recommend the TI-82, TI-83, TI-85, or TI-86. Some are for sale at the bookstore. Sometimes you can find a better sale price at a local discount store. If you have another brand or type, you can most likely use it. Some, however, are getting out of date. Check it out with me to be sure. **(2.2)**
- 2) MATHEMATICA, Version 3 or 4, a computer program is available in the MathLab, KH473, and in the generic computer lab next door. **(2.2)**

NOTE: You will be required to bring your textbook and your graphing calculator to every class. You will be required to bring your graphing calculator to every test. **(2.2)**

Grading Policy:

3 Tests, 60%; Final Exam, 20%; Homework 20%

NOTE: If you have a disability that is documented by the Disability Support Services Office, please see me as soon as possible so that we can discuss your academic accommodations. **(2.1)**

The Rule of Four:

The course follows the RULE OF THREE. This means that all concepts are discussed algebraically, numerically, and graphically. You are expected to grapple with all three aspects of calculus. There is a fourth rule: Writing. You will be asked to write about your ideas. This will help you clarify your thoughts about calculus concepts. **(1.4)**

Some homework will be assigned to be handed in. Some of it will come from the textbook. Some will come from the Mathematica book. Some will come from the problems you have been doing during the week and which we discussed on PROBLEM DAY. **(1.1)**

Most will be teamwork. You will usually be given a few days to hand it in. As the semester progresses, I will be setting up teams to do homework. Each team will submit one report. Everyone on the team will receive the same grade. You are responsible for understanding ALL of the team work which is assigned. You will be tested on it on the exams. **(1.3)**

The out-of-class workload for this course will be substantial. The rough rule of thumb is that, FOR THIS COURSE ALONE, you should be spending about 6 hours per week outside of class on homework assignments, reading your class notes, reading the book. Reading assignments may contain material, which I believe you can master on your own. I expect you to read it and ask questions. This syllabus is a good example. I expect you to read it carefully on - your own. You are responsible for all the details of this syllabus, even if I do not mention them all in class.

Syllabus: Chapter 9: Vectors and Geometry of Space

Three-Dimensional Geometry, vectors, Dot and Cross Product, lines and planes, Cylindrical and Spherical Coordinates

Chapter 10: Vector Functions

Space curves, derivatives and integrals of vector functions, arc length, parametric surfaces

Chapter 11: Partial Derivatives

Limits and continuity, tangent planes, linear approximation, Chain Rule, directional derivatives, gradient, maximum-minimum values, Lagrange Multipliers

Chapter 12: Multiple Integrals

Double integrals over rectangles, general regions and in polar coordinates, triple integrals

MA 395 DISCRETE METHODS

TEXT: Edward R. Scheinerman, Mathematics: A Discrete Introduction, preliminary version (available from instructor for relatively modest price)

SYLLABUS: Chapters I through V
Chapter VI (portions)
Chapter IX

GRADING:	% of Course Grade
3 Tests (20% each)	60
Final Exam (comprehensive)	25
Quizzes and Assignments	15

REMARKS:

- a) The course will be heavily problem oriented. The exact manner in which problem work will be assigned and discussed will be mentioned in the first few classes. **(1.1)**
- b) "Most Wednesdays" there will be a brief quiz on the previous week's material.
- c) Absence from a test or quiz will require a valid written medical excuse. Makeups will not ordinarily be given.
- d) Questions during class are very much encouraged. **(1.3)**
- e) Feel free to see me at any time regarding your progress in the course, assigned material, etc. **(1.3)**

BIBLIOGRAPHY:

- R. Johnsonbaugh, Discrete Mathematics, 3rd ed., Macmillan, 1993.
 G. Chartrand, Graphs as Mathematical Models, Prindle, Weber & Schmidt, 1977.
 O. Ore, Graphs & Their Uses, New Mathematical Library, 1963.
 A. Tucker, Applied Combinatorics, 3rd ed., Wiley, 1995.
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 I. A. Bondy & U.S. Murty, Graph Theory with Applications, North Holland, 1976.
 R. Sedgewick, Algorithms, Addison-Wesley, 1983.
 D. E. Knuth, The Art of Computer Programming, Vol. 1: Fundamental Algorithms; Vol. 2: Sorting and Searching, Addison-Wesley, 1973.
 Hillman, Alexanderson, Grassi, Discrete and Combinatorial Mathematics, Macmillan, 1987.
 K. Kalmanson, An Intro. to Discrete Mathematics and Its Applications, Addison-Wesley, 1986.
 M. Townsend, Discrete Mathematics: Applied Combinatorics and Graph Theory, Benjamin Cummings, 1987.
 K. Rosen, Discrete Mathematics and its Applications, (3rd ed.), McGraw-Hill, 1995
 K. Ross & C. Wright, Discrete Mathematics, (3rd ed.), Prentice-Hall, 1992.
 Maurer, S. & Ralston, A., Discrete Algorithmic Mathematics, Addison- Wesley, 1991.
 Michaels, J. G. & Rosen, K., Applications of Discrete Mathematics, McGraw-Hill, 1991

MA 421: ANALYSIS I

Materials: Fundamental Ideas of Analysis by Michael Reed

Course Content: In this course we will explore the definitions and rigorously prove many of the results used in differential and integral Calculus, and thus the course will have a strong theoretical component. Proceeding from very basic properties of the real numbers we will build precise definitions of limits, continuity, differentiability, and integrability.

Using these definitions we will learn to carefully prove fundamental results. Thus, learning how to prove theorems will be a central part of this course. However, the ideas and methods explored play a vital role in many applied mathematical areas such as ordinary differential equations, probability theory, numerical analysis, and complex analysis. Thus, where appropriate, we will apply our new knowledge to some applied problems. In particular, since so much of applied mathematics revolves around estimation, and hence error, we will discuss the way in which analysis helps us to understand and control errors. **(1.1, 1.2, 1.3, 1.4)**

We will cover selected sections from chapters 1 -4 of the text.

Prerequisites: MA 351, and MA 301 or MA 395

Grading: Final: 30%

Tests: 15+15 = 30%

Homework: 25%

Projects: 15%

MA 421: ANALYSIS I

Materials: Fundamental Ideas of Analysis by Michael Reed

Course Content: In this course we will explore the definitions and rigorously prove many of the results used in differential and integral Calculus, and thus the course will have a strong theoretical component. Proceeding from very basic properties of the real numbers we will build precise definitions of limits, continuity, differentiability, and integrability. Using these definitions we will learn to carefully prove fundamental results. Thus, learning how to prove theorems will be a central part of this course. However, the ideas and methods explored play a vital role in many applied mathematical areas such as ordinary differential equations, probability theory, numerical analysis, and complex analysis. Thus, where appropriate, we will apply our new knowledge to some applied problems. In particular, since so much of applied mathematics revolves around estimation, and hence error, we will discuss the way in which analysis helps us to understand and control errors. **(1.1, 1.2, 1.3, 1.4)**

We will cover selected sections from chapters 1 -4 of the text.

Prerequisites: MA 351, and MA 301 or MA 395

Grading: Final: 30%

Tests: 15+15 = 30%

Homework: 25%

Projects: 15%

MA 441 Algebraic Structures I (1.5.10; 1.5.14)

Texts: A First Course in Abstract Algebra, Fraleigh
A Handbook of Mathematical Logic, Young
Any linear algebra book

Problem Sets: There will be weekly Problem Sets; these will be due at class time, usually on Wednesdays. Late papers will be assigned a penalty and will not be accepted more than a class or two after they are due.

Grading: Your grade for this course will be computed as follows:

Problem Sets 45%

2 Hour Tests (15% each) 30%

Final Exam 25%

Course Content:

Mathematics is a language that has its own unique vocabulary. It is often difficult to describe something to someone who does not "speak the language." Once you know the language, you will be better able to understand the comments that appear in the following paragraphs. **(1.3)**

This course is aptly titled "algebraic structures." We will consider sets which have one or more operations defined on them; e.g., the set of real numbers with addition. Our focus will be on the "algebraic" properties of these sets and their operations. Thus for example, we will be interested that for real numbers a and b , the equation $a + x = b$ always has a unique solution. On the other hand, we will not be interested in the fact that between any two real numbers is another real number. Properties of order are "analytical" not algebraic; analytical properties are studied in Analysis.

We will be interested in identifying and classifying sets and operations, which have the same basic structure. In that case, any theorem which holds for one such set and operation(s) will hold for all others. By the end of the course we will have an extensive list of both examples and theorems.

You may be surprised to learn that you have already studied, in a formal way, one type of algebraic structure. As we will see, a vector space is an algebraic structure. This semester our primary focus will be on the algebraic structure known as a "group." In the spring semester we will look at other algebraic structures: "integral domain," "ring" and "field." Algebra is "pure" rather than "applied" mathematics. Although it does have applications, our focus will be the study of algebra for its own sake. Your book contains subsections which discuss some applications. I urge you to read this material, even if I do not specifically assign it.

Purpose of Problem Sets:

The only way to learn mathematics is to do it. "Doing mathematics" at the advanced undergraduate level means doing proofs. I wrote the logic handbook to help you understand the logical reasoning found in proofs. You can learn a great deal about proofs by reading the textbook and listening in class. Still, doing proofs is a skill that must be practiced. **(1.1)**

Practice doing proofs is one of the two main purposes of the weekly Problem Sets. In mathematics there are certain standard proof-techniques; e.g., induction. Problem Sets as well as suggested exercises will give you an opportunity to practice the techniques that we discuss in class. It is often useful to work with others, sharing ideas, insights and frustrations. I encourage you to find one or more study partners. On Problem Sets you are free to work with others; however, you must tell me about any collaboration and acknowledge any assistance.

Practice writing proofs is the other main purpose of the weekly Problem Sets. As with theorem proving, there are standard, mathematically accepted writing styles. We will discuss these in class and you will practice them on the Problem Sets. For most problems, you will be required to write your solutions "on your own." **(1.3)**

Problem Sets and Tests:

Problems on the tests will differ significantly from those on the Problem Sets. Although some questions will test your knowledge of definitions and examples, most will require some type of proof. These will be relatively short and straightforward; their purpose will be to see if you know important proof techniques.

Discovering/creating/designing a proof and writing it in a polished format takes time.

Frequently, the process also involves false, unproductive starts. This is one of the reasons that tests will differ so dramatically from Problem Sets. It is also the reason that you will have a week to work on a Problem Set. And it is the reason that Problem Sets count 45% of the grade.

Prerequisite: Linear Algebra and Discrete Methods

Since Linear Algebra and Discrete Methods involve theoretical mathematics and proofs, both of these courses are prerequisites. Discrete Methods is required primarily to insure a certain level of mathematical majority. We will occasionally use induction and elementary counting arguments.

Linear Algebra is a very important prerequisite because a vector space is a type of algebraic structure. In addition, matrices will be a source of many important examples. I do not expect you to have instant recall of every aspect of Linear Algebra. However, if/when we use something from Linear Algebra that you do not remember, I expect you to look it up and do the necessary review. Thus, it is very important that you have a Linear Algebra textbook, preferably the one you used when you took the course. If you do not have a book, borrow one from the Seminar Room or the Math Lab.

Methods of Teaching Mathematics in the Secondary School DEDU 433

I. Course Description

This course examines the objectives, nature, and place of Mathematics in the secondary school. The class provides students with specific and practical ways to develop competency in planning and skill in teaching Mathematics to adolescents. The National Council of Teachers of Mathematics Standards and the State of Maryland High School Core Learning Goals for Mathematics are presented and applied throughout the course.

II. Course Objectives

Students will:

Examine the place of Mathematics in the secondary school curriculum. **(1.2, 1.4)**

Examine current research on effective teaching practices in Mathematics.

Review and interpret the national and local standards for instruction of Mathematics. **(1.2)**

Apply the *dimensions of learning* model to lesson planning.

Observe and interpret adolescent behavior and the interaction of teachers and students in classes and in a variety of school environments. **(2.1)**

Recognize, value, and plan for gender differences, diversity of socio-cultural experiences, and for learning styles of individual students. **(1.6, 2.1)**

Examine, reflect upon, and discuss the nature of Mathematics, the modes of thinking, the key questions with which the subject deals, and the methods through which knowledge is added, challenged, and tested in the discipline. **(1.2, 2.5)**

Study curriculum guides and several types of long and short range plans, unit and daily lesson plans, as methods of organizing matter and student activities within time frames.

Develop and write complete lesson plans and sequences of lesson plans in the academic discipline.

Develop and write or adapt a complete unit plan suitable for use in student teaching.

Write appropriate objectives for unit and lesson plans.

Examine, develop, share, and evaluate a variety of motivational techniques, questioning techniques, and activities designed to develop skill in guiding students in thinking and problem solving. **(2.4)**

Examine, evaluate, and use several models of teaching – such as inquiry and discovery, Mastery Teaching, cooperative learning – as methods of encouraging student learning through active participation in the learning process.

Incorporate techniques for teaching reading, writing, and thinking across the curriculum. **(1.4)**

Develop and evaluate guidelines for the use of groups in the classroom. **(2.7)**

Develop plans to provide for the individual abilities and needs of students through drill and review activities, independent assignments and individualized study.

Demonstrate the ability to put written plans into practice through peer teaching experiences.

Critique lessons observed in peer teaching and in classroom observations in schools.

Understand the integral part that assessment plays in the effective teaching process. **(2.2)**

Examine and analyze a variety of assessment methods. **(2.3)**

Develop and demonstrate proficiency in the knowledge of assessment and evaluation techniques used in the classroom. **(2.3)**

Analyze standardized and teacher-made test as in the evaluation of student performance and progress. **(2.3)**

Develop instructional materials for the overhead projector. **(2.2, 2.6)**

Identify resources available to improve instruction. **(2.2, 2.6)**

Analyze the impact of technology (calculator/computer) on the Mathematics classroom. **(2.2, 2.6)**

Use the technology of the calculator or computer in lesson plans and peer teaching. **(2.2, 2.6)**

Prepare and present an opening activity for class.

Identify, analyze, and use principles of effective classroom organization and management including handling of discipline situations. **(2.7)**

Demonstrate knowledge of theory in a final written examination.

Demonstrate effective communications skills – reading, writing, speaking, and listening, in classwork and assignments.

Demonstrate professional attitudes and behavior.

III. Course content – Topics to be covered in the course

- a. Motivating Mathematics
- b. National and local standards for Mathematics in instruction
- c. Current thinking in Mathematics instruction
- d. Building a long range plan and an individual lesson plan
- e. Methods of presentation
- f. Technology – Impact on the Mathematics classroom **(2.2)**
- g. Technology – Use in the classroom (including presenting with the TI-83) **(2.2)**
- h. Homework, Tutoring, and Extra Credit.
- i. Gender, Multicultural and Individual differences **((2.1))**
- j. Methods of Assessment **(2.3)**
- k. Test writing, grading, rubrics
- l. Difficult topics for students
- m. Writing in the mathematics classroom **(1.4)**
- n. Using text materials and other resources
- o. Practice teaching

IV.. Course requirements

1. Effective class planning (35%)
 - a) Write a long-range unit plan (2-3 week plan)
 - b) Write 5 individual lesson plans.
 - One lesson plan must focus on multicultural instruction **((2.1))**
 - One plan must utilize technology **(2.2)**
 - c) Write one assessment instrument. **(2.3)**

The lesson plans must demonstrate originality and creativity by the student-teacher

2. Classroom teaching (15%)
 - Observations of classes/peer teaching
 - Motivational videotape evaluation (submit to teacher) **(2.2)**
 - Peer teaching (at least 3 times)

3. Understanding and analysis of topics in math education (15%) **(1.3)**

Class participation/attendance/professionalism
Reading assignments
Absences will affect the grade in the area.

4. Presenting with the Graphing Calculator (TI-83 required) (15%) **(2.2)**
Calculator Practicum will be given.
5. Final Exam (20%)

Your active participation in the course is Expected. It is essential to your development as a teacher. **(1.3)**

V. Internet Resources – **(2.2)**

Math Forum at Swarthmore-lesson plans, links to other sites.
([//forumswarthmore.edu/](http://forumswarthmore.edu/))

Texas Instrument Site – downloads for the calculator, activities, and other resources.
(www.ti.com/calc/)

National Security Agency – Math Education Partnership (MEPP). Programs for teachers, students, learning units available. Information on the USA math talent search is also located at this site. (www.nsa.gov)

National Council of Teachers of Mathematics Homepage (www.nctm.org/)

Mathematical Association of America (www.mas.org/)

VI. Bibliography

Aichele, Douglas and Coxford, Arthur (Editors), Professional Development for Teachers of Mathematics, National Council of Teachers of Mathematics, Reston, VA., 1994.

Boyer, Carl and Merzbach, Uta (revision editor), A History of Mathematics 2nd edition, John Wiley and Sons, New York, NY, 1991.

Coxford, Arthur and Webb, Norman (Editors), Assessment in the Mathematics Classroom, National Council of Teachers of Mathematics, Reston, VA., 1993. **(2.3)**

Kenney, Margaret and Trentacosta, Janet (Editors), Multicultural and Gender Equity in the Mathematics Classroom; 1997 Yearbook, National Council of Teachers of Mathematics, Reston, VA., 1997.

National Council of Teachers of Mathematics, Curriculum and Evaluation Standards, National Council of Teachers of Mathematics, Reston, VA., 1989.

National Council of Teachers of Mathematics, Professional Standards for Teaching Mathematics, National Council of Teachers of Mathematics, Reston, VA., 1991.

National Council of Teachers of Mathematics, Assessment Standards for School Mathematics, National Council of Teachers of Mathematics, Reston, VA., 1995.

National Council of Teachers of Mathematics, Principles and Standards for School Mathematics: Discussion Draft Council of Teachers of Mathematics, Reston, VA., 1998.

Loyola College

Department of Education

ED 301.01: Educational Psychology

Instructor: Victor R. Delclos, Ph.D.
Time: Tuesday & Thursday, 9:25-10:40 AM
Room: Beatty 19

Office: 116A Beatty Hall
Office Hours: Immediately after class
And by appointment
410-617-2998 vdelclos@loyola.edu

TEXT: Woolfolk, Anita M. (1998). *Educational Psychology (7th Ed.)* Boston: Allyn & Bacon.

WEBSITE: <http://lcboard.loyola.edu/courses/ED301.01F2000/>

RATIONALE: This course is designed to provide you with an overview of contemporary Educational Psychology as it applies to instruction in American schools. The emphasis is on secondary level (7-12) schooling. Specific topics include learning, motivation, development, individual differences, and assessment. **(2.1, 2.3)**

OBJECTIVES:

- To recognize the complexity of teaching and learning and to develop conceptual tools for working with students as an educator
- To think critically about and discuss various issues related to learning in and out of schools
- To develop skills related to professional reading, reflection, observation, decision-making, and self-evaluation
- To know and understand various behavioral and cognitive learning theories
- To know and understand behavioral, cognitive, and humanistic views of motivation and strategies used to motivate students
- To begin to understand the role of various individual differences (e.g. intelligence, culture, disability) as they relate to teaching and learning To articulate a clear theory of learning and motivation based on current research and theory and to apply it to your own area of teaching **(2.1)**
- To know and recognize appropriate uses of educational psychology principles in order to plan more effectively for classroom teaching

- To know and understand the development and use of standardized tests in education and to critically evaluate their use (2.3)

REQUIREMENTS: You are required to read all assigned materials in advance of the designated class session, attend class sessions, participate in class discussions and activities, and complete all exams and projects as described in the syllabus and other handouts. All work must be typed and turned in on time. Points will be allocated according to the following guidelines:

- 40 Points Attendance and Participation — 1.5 points will be given for attendance and participation in each class session. You are expected to read required materials before class and to come to class prepared to ask questions and take part in discussions. You may not make up these points in any way if you miss a class, no matter what the reason. Class is part of the shared learning experience for everyone in the class and your absence or failure to participate detracts from that experience.
- 35 Points Quizzes — You will take 7 very brief quizzes (5 points each) on Tuesday of each week that we do not have an exam or other significant project (see Course Outline for dates). Quizzes will be objective in nature. You must be present at the beginning of class in order to take the quiz. No make-up quizzes will be given.
- 30 Points Brief Research Paper — You will choose one of the following five (2.2) topics, complete a library search for articles on that topic, read at least 4 articles, and summarize your findings in a 3 - 5 page paper typed using APA citation format. Your articles must be published in professional journals or ERIC documents. You must describe exactly how you found your articles in an appendix to your paper. The topics are: (a) intelligence; (b) cooperative learning; (c) inclusion; (d) teacher expectations; and (e) character education.
- 50 Points Learning Journal — Throughout this semester you will participate in a variety of learning and assessment experiences in this class. These include such things as class discussions, group work, lectures, videos, quizzes, exams, and papers. The purpose of this Learning Journal is to help you **focus on your own efforts as a learner** of Educational Psychology. You will take time to reflect on your experiences and write about them as learning events. You will describe the task or event, tell what you did and how that worked, and analyze the experience from the perspective of the APA's Learner-Centered Principles. Each entry should be carefully and clearly handwritten or typed. Your first entry should include your reaction to this syllabus and the first class. You will turn in the journal approximately every three weeks, on the assigned Tuesday, and it will be returned to you with

comments at the following class session . Journal entries will be evaluated based on the thoroughness of the description, the specificity of the what and how, and the quality of the analysis.

(2.2)

50 Points

Theory of Learning Paper — As you prepare to teach others, you must have underlying assumptions about how learning occurs. You probably have not thought much about your own assumptions about learning. This exercise is an opportunity for you to articulate your assumptions. You will turn in two versions of this paper. The first is due at the first meeting of the second week of class. It should be your personal answer to the question, “How do people learn?”. You should not do any research for this version.

Expected length is 3 - 5 pages typed double-spaced.

You will receive your first version back in one week with comments and suggestions for reading and research. The final version should reflect a combination of your original thoughts, your learning about learning over the semester, and your outside reading on the topic. This paper should be a clear statement, supported by theory and research, of the theory of learning that will guide you as you begin your teaching career. The final version must be typed, using APA citation format, and should be at least 5 pages long. You must turn in your commented first draft with your final draft.

150 Points

Examinations — You will take three in-class examinations (50 points each) on the basic content of the course. Each exam will be cumulative in nature, i.e., questions will draw on any and all material covered up to that point in class. The first two exams will be oriented toward testing your basic knowledge of important topics covered in the course such as stages of development, parts of the human information processing system, and categories of knowledge. The third exam (Final) will require application and synthesis of course concepts.

75 Points

Portfolio — You will develop a portfolio of your coursework and other learning activities during the semester. The portfolio will be centered on what you have learned as it relates specifically to the subject/level in which you are seeking certification. You will be expected to integrate what you have learned in readings, lectures, and course projects and through other experiences outside of the course into a focused presentation. The portfolio should be a purposeful collection of work that shows growth, reflection, and achievement. You may select what goes into your portfolio, but it should be organized in a three-ring binder with the following sections: (a) cover page; (b) table of contents; (c) introduction (rationale for your choices and process for developing your

presentation); (d) sections on what you have learned about learning in terms of (1) cognitive and metacognitive factors, (2) motivational and affective factors, (3) developmental and social factors, and (4) individual difference factors; (5) assessment factors; and (e) references to important readings, websites, organizations, and experiences that you have used in your learning. Each of the 5 parts of section d. should include a reflective statement that connects your learning to tangible references such as a specific reading, a class exercise, an observation you made, etc. You will be provided with the rubric that will be used to evaluate your portfolio early in the semester. (2.2, 2.3)

COURSE OUTLINE

DATE	TOPIC	READING
(1) September 5	Introduction: Course Overview; A look into a 10th grade biology classroom	Chap. 1, pg. 6, Robert, Ellen, Randy
(2) September 7	Educational Psychology & Classroom Instruction: What does research in learning and cognition have to offer teachers? APA's 14 Learner-Centered Principles	Chap. 1, pg. 11-13; APA Learner Centered Principles
(3) September 12	Cognitive Development: The work of Piaget; Implications for instruction Theory of Learning Paper, Version 1, due <u>QUIZ 1</u>	Chap. 2, pp. 24-44
(4) September 14	Cognitive Development: Vygotsky's "Zone of Proximal Development;" Implications for instruction	Chap. 2, pp. 44-51

DATE	TOPIC	READING
(5) September 19	Social and Moral Development: Erickson's social developmental stages; Marcia's identity statuses; Kohlberg's moral developmental stages Learning Journal due QUIZ 2	Chap. 3, pp. 66-72, 73-76; 80-91

(6) September 21 (2.1)	Individual Differences: Views of intelligence; mental retardation as an example of ability differences; Culture and gender as correlates of learning differences	Chap. 4, pp. 112-129, Chap. 5, pp. 166-170; 178-184
(7) September 26 (2.1)	Dealing with diversity in the classroom: Banks' dimensions of multicultural teaching; Tharp's culturally compatible classrooms	Chap. 5, pp. 162-166; 192-197
(8) September 28	Exam 1	
(9) October 3	Behavioral Learning Theories: Classical, Operant, and Social Learning Theories	Chap. 6, pp. 204-216, 225-230
(10) October 5	Cognitive Learning Theories: Perception; Information Processing Models of Human Memory	Chap. 7, pp. 244-266
(11) October 10	Cognitive Learning Theories: Metacognition; Learning Strategies; the central role of knowledge in human cognition Learning Journal due QUIZ 3	Chap. 7, pp. 266-285
(12) October 12	<u>Applications of Cognitive Learning Theories to teaching: concept learning and problem solving</u>	Chap. 8, pp. 286-306
13) October 17	Applications of Cognitive Learning Theories to teaching: Learning strategies, thinking skills, and transfer <u>QUIZ 4</u>	Chap. 8, pp. 307-327
(14) October 19	Learning and instruction: Behavioral Models; Mastery learning and direct instruction	Chap. 9, pp. 330-337
(15) October 24	Learning and instruction: Cognitive Models; Bruner, Ausubel, and Gagne <u>QUIZ 5</u>	Chap. 9, pp. 338-357
(16) October 26	Theories of Human Motivation: Maslow's Hierarchy of Needs; Intrinsic and Extrinsic Motivation	Chap. 10, pp. 370-386
(17) October 31	Theories of Human Motivation: Learning vs. Performance Goals; Attribution and Achievement Motivation; Dweck's Model Learning Journal due	Chap. 10, pp. 387-403

(18) November 2	Exam 2	
(19) November 7	Research based learning environments: The Jasper Woodbuty Series in Mathematics Theory of Learning Paper, Version 2, due	Handout
(20) November 9	Applied Educational Research: Beck & McKeown's work in Social Studies texts	Handout
(21) November 14 (2.3)	Applied Educational Research: Delclos & Zittle's work in Science instruction and assessment <u>QUIZ 6</u>	Handout
(22) November 16	Review of Cognitive/ Constructivist Models and APA Learner-Centered Principles Learning Journal due	Chapter 13, pp. 494-508
(23) November 21 (2.3)	Principles of Educational Measurement; Interpreting Test Scores; Standardized Tests Brief Research Report due <u>QUIZ 6</u>	Chap. 14
(24) November 28 (2.3)	Issues in the uses of Standardized Testing; Alternative Assessment	View “Merrow Report” video
(25) December 5 (2.3)	Formative and Summative Assessment; Objectives and Testing; Basic Issues in Test construction	Chap. 15, pp. 554-565
(26) December 7 (2.3)	Authentic Assessment; Using test results for evaluation, grading, and reporting Portfolio due	Chap. 15, pp. 566-591
December 14	1 PM — Final Exam	

ED 429 SECONDARY METHODS OF TEACHING, (2.5, 2.6, 2.6, 2.9, 3.1)

Course Description:

This course is a pre-requisite for the content methods courses and for student teaching. During the course, students study teaching and learning styles, methods of instruction, planning, assessment, and classroom management and discipline. Students will be actively involved through interacting, planning, and teaching lessons to their peers and their students.

Course Objectives: Students will

- Describe secondary education in the United States today.
- Apply current research about teaching/learning styles and methods in making instructional decisions.
- Demonstrate the ability to develop unit and daily lesson plans for effective instruction.
- Choose from a variety of instructional strategies and resources in order to attain the desired objectives.
- Demonstrate teaching behaviors which facilitate learning by multicultural populations, by both genders and by students at varying levels of performance. **(2.1)**
- Select from a variety of assessment procedures those which best fit particular objectives and situations. **(2.3)**
- Describe a code of ethics for secondary teachers.
- Describe the instructional and non-instructional responsibilities of the teacher.
- Develop and/or refine a personal philosophy of education.
- Examine resources available to aid in teaching. **(2.2)**

Course Requirements:

- Attend all classes and seminars, be punctual, and participate actively.
- Complete assigned readings and journal entries. Reading organizers and journal entries are due at the following class session.
- Develop a unit plan in your content area using a model demonstrated in class. Unit plan for middle school due to Ms. Sears on or before September 5; unit plan for high school due to Ms. Sears on or before November 6.
- Develop daily lesson plans for all units and lessons taught; be prepared to show Dr. Golden, Ms. Sears, and/or Mr. Wentworth previous, current, and potential lesson plans any time they visit – announced or unannounced; submit typewritten copies of two of your best middle school lessons by October 20 and submit typewritten copies of two of your best high school lessons by December 11. **(2.2)**
- Create at least two bulletin boards. Submit written and/or sketched bulletin board description and a photograph of your middle school bulletin board by **October 6** and for your high school bulletin board by **December 8**.
- Videotape at least one lesson for your middle school assignment and one lesson for your high school assignment. Videotapes are due by **October 23** and **December 13** respectively. For each videotape, include a self-analysis of strengths and suggestions. **(2.2)**

Course Evaluation:

- Attendance, punctuality, participation – 10%
(Because of the nature of this course, three or more absences will ordinarily result in a failing grade)
- Unit Plans (2) – 20%
- Lesson Plan (4) – 20%
- Bulletin board (2)– 10%
- Videotapes and self-analysis (2) – 20% (do not need to be typed) **(2.2)**

- Journals, organizers, etc. – 20% (do not need to be typed)
- All work is to be done in a professional, thoughtful manner.
- All work is to be typed unless otherwise noted.

Course Texts:

Kellough, Richard D. and Noreen G. Secondary School Teaching: A Guide to Methods and Resources – Planning for Competence. Upper Saddle River: Prentice-Hall, Inc., 1999.

Suggested Books:

- Berliner, David C. and Biddle, Bruce J. The Manufactured Crisis. White Plains, NY: Longman Publishers USA, 1997.
- Curwin, Richard and Mendler, Allen. Discipline with Dignity. Alexandria, VA: Association for Supervision and Curriculum Development, 1988.
- Gardner, H. Multiple Intelligences: The Theory in Practice. New York: Basic Books, 1993.
- Goodlad, John I. A Place Called School. New York: McGraw Hill, 1984.
- Johnson, LouAnne. **Dangerous Minds**. New York: St. Martin's Press, 1992.
- Kozol, Jonathan. Amazing Grace. New York: Crown Publishers, 1995.
- Marzano, Robert J. et al. Dimensions of Learning (Teacher's Manual). Alexandria, VA: Association for Supervision and Curriculum Development, 1992.
- National Association of Secondary School Principals. Breaking Ranks: Changing an American Institution. Reston, VA: NASSP, 1996.
- Pipher, Mary. Reviving Ophelia: Saving the Selves of Adolescent Girls. New York: Ballantine Books, 1994.
- Pollack, William. Real Boys: Rescuing Our Sons from the Myths of Boyhood. New York: Henry Holt & Company, 1998.
- Sizer, Theodore R. Horace's Compromise: The Dilemma of the American High School. Boston: Houghton Mifflin, 1984.

TENTATIVE SCHEDULE
SECONDARY METHODS OF TEACHING

Session 1: Monday 8:30 – 11:30, August 21, 2000—SECONDARY EDUCATION TODAY: THE CALLING

- Introductions
- Overview of course syllabus
- What are the characteristics of a good teacher?
- What are today's secondary students like?
- How do people learn?
- How can learning be assessed? (2.3)
- School structures today
- Video: **Multiple Intelligences (2.1, 2.2)**
- Reflection on teaching strategies used in this session

Session 2: Monday 12:30 – 3:30, August 21, 2000—LEARNING AND THE MIDDLE SCHOOL STUDENT

Praxis Test

Characteristics of the Middle School Student (2.1)

How the Brain Works - Metacognition

Dimensions of Learning Overview

Assignment:

1. Review Kellough and Kellough, Chapter 2, pp. 60 – 98, “The Expectations, Responsibilities, and Facilitating Behaviors of a Classroom Teacher.” Reflect on Madeline Hunter’s quote on p. 61. Write reflection in your journal. Complete exercises 2.5 (pp. 85-86) and 2.9 (pp. 89-92). Reflect on your answers in your journal.
2. Formally complete a journal entry on why you want to be a teacher.
3. Reflect on the activities and discussions in Sessions 1 & 2. Identify two interesting ideas about teaching that you gained from others. How do these ideas relate to your own experience or beliefs? Respond in a journal entry.

Session 3: Tuesday 8:30 – 11:30, August 22, 2000—PLANNING: THE BIG PICTURE

Discussion of journal entries

Analysis: **Cosby Show** (Griffith as substitute teacher)

Dimension of Learning #1: Positive attitudes and behaviors

Planning – The Big Picture

Selecting course content

Levels of Planning

Instructional goals

Maryland Core Learning Goals for High School

Unit Planning

Selecting Strategies

Potential for Interdisciplinary Teaching

Reflection on teaching strategies used in this session

Session 4: Tuesday 12:30 – 3:30, August 22, 2000— LESSON PLANNING

Discussion of selected journal entries

The daily lesson plan

Behavioral objectives

Motivational techniques

Development

Flow and pacing

Transitions

Questioning

The significance of summaries

Embedded assessment

Home assignments

Dimension of Learning #2: Acquiring and Integrating Knowledge

Reflection on strategies used in this session

Assignment:

1. Read Kellough and Kellough , Chapter 4, pp. 167 – 217, “Preparing for the Levels of Planning, Selecting Content, and Setting Objectives.” Create graphic organizer(s) to cover the material in this chapter.
2. Read Kellough and Kellough, Chapter 5, pp. 218 – 270, “Preparing an Instructional Plan.” Complete Ex 5.5 pp. 259 –261.

Session 5: Wednesday 8:30 – 11:30, August 23, 2000 – THE INVITING, WELL-MANAGED CLASSROOM

Discussion of journal entries
Dimension of Learning #5: Productive Habits of Mind
Establishing inviting classrooms
 Importance of the environment
 Bulletin Boards
 Routines
 Classroom rules - Behavior Management Systems
Problems caused by the teacher
Dealing with potentially difficult people: students, parents, colleagues, and administrators

Session 6: Wednesday 12:30 – 3:30, August 23, 2000 – SCHOOL LAW

Safety in Schools
School Law
Student Handbook
Police in the Schools

Assignment:

1. Read Kellough and Kellough, Chapter 6, pp. 273 – 284, “Theoretical Considerations for the Selection of Instructional Strategies.” Reflect on exercise 6.1 (pp. 281-2). Write your reflection in your journal.
2. Read Kellough and Kellough, Chapter 11, pp. 415 – 456, “Assessing and Reporting Student Achievement.” Reflect on questions 1 and 3 on pp. 454 and 455. Write your responses in your journal.
3. Reflect on any positive or negative grading/assessment experiences you recall personally. Write your response in your journal.

Session 7: Thursday 8:30 – 11:30, August 24, 2000—QUESTIONING AND ASSESSMENT (2.3)

Discussion of journal entries
Asking higher level questions
Logical sequencing of questions (2.4)
Interactive lectures
National standards
Maryland Functional Tests
Maryland School Performance Assessment Program

Varieties of Assessment
Individualized, independent learning
Grouping
Developing a scoring tool
Reflection on teaching strategies used in this session

Session 8: Thursday 12:30 – 3:30, August 24, 2000 – COMMUNICATION

Discussion of journal entries
Grading and the grade book
Instructional and non-instructional responsibilities of today's teachers
Professional appearance and demeanor
Oral and written communication with students, colleagues, parents, administrators

Assignment:

1. Review Kellough and Kellough, Chapter 7, pp. 285 – 307, "Questioning for Teaching and Learning." Reflect on questions 1 and 5 on p. 307. Write your responses in your journal.
2. Complete exercise 7.1 on p. 289 to check your understanding of cognitive levels of questions.
3. Review Kellough and Kellough, Chapter 3, pp. 99 – 165, "Establishing and Maintaining an Effective and Safe Classroom Learning Environment." Reflect on our discussion of this chapter and the activities we did in class. Think about a time when either a teacher disciplined you or you saw someone else disciplined by a teacher. Complete a journal entry in which you comment on the effectiveness of the teacher's actions.

Session 9: Friday 8:30 – 11:30, August 25, 2000 – TECHNOLOGY (2.2)

Key sites helpful to teachers
Gradebook programs and other computer-assisted instruction
Using computers/computer labs with students

Session 10: Friday 12:30 – 3:30, August 25, 2000 – TODAY'S STUDENTS AND THEIR ISSUES

Bullying
Depression
Alcoholism/Drug Addiction
Sexual Identity

1. Over the next week, read in Kellough and Kellough, Chapters 8 – 10, pp. 308 – 414. Discuss questions or concerns with your content instructors, your mentors, or your college supervisors.
2. For both chapters 8 and 9, write journal entries answering questions 8 and 9 on pages 353 and 381.

Assignment:

1. Review Kellough and Kellough, Chapter 1, pp. 3 –59, “Teaching and Learning in Today’s Secondary Schools.” Reflect on questions 2, 3, and 8 on p. 57. Write responses in your journal.
2. Complete exercise 3.6 pp. 131 – 135. Be prepared to discuss. Note: Maryland law is sometimes different from California law.
3. Read and complete the following:
Read Kellough and Kellough, Chapter 12, pp. 456 – 480, “Professional Development and Assessment of Teaching Effectiveness.” Be prepared to suggest a rubric or other means of assessment for your mini-lesson demonstrations. **(2.3)**

Assignment:

4. Read and complete **one** of the following: **(2.1)**
 - Read **Dangerous Minds**, Chapters 19 - 20. Write any positive or negative reactions you had to her methods or situation.
 - Read **Real Boys**, Chapter 7. Write any reflections based on your beliefs and experiences.
 - Read **Reviving Ophelia**, Chapter 7. Write any reflections based on your beliefs and experiences.

Sessions 6-10: Tuesday, June 20 through Thursday, July 6, 2000—CONTENT METHODS

(All assignments from content instructor including lesson plan(s) and unit plan due during time frame given.)

Sessions 11-12: Tuesday, July 11 and Thursday, July 13, 2000—LARGE GROUP MINI-LESSONS

(All remaining journals, second lesson plan, and unit plan due to Ms. Sears on July 11.)
Philosophy of education due on July 13.

All assignments are to be completed by due dates or grade will be lowered.

For the mini-lesson, you will need

- a copy of the lesson plan for each participant
- the use of A/V equipment **(2.2)**
- handouts
- to be dressed as a teacher
- at least 20 minutes for presentation

Professional Development Schools – Secondary

ED 432: Internship Internship I, (2.4; 2.5; 2.6; 2.7; 2.8; 2.9; 3.1)

Course Description:

Through field-based observation and participation, interns will become familiar with teaching responsibilities and reassess their interest in secondary education. Interns will become oriented to the school community and will work directly with secondary students. These experiences and related assignments will facilitate the development of a personal philosophy of teaching and encourage the application of sound educational theories.

Course Objectives

The interns will:

- Develop an understanding of the student population by studying demographic information, cultural and ethnic composition, and other aspects of the community that affect educational support for adolescents. **(2.1)**
- Engage in thoughtful reflection and analysis of a school in the context of a school system to include an awareness of the structure, goals and policies, human and instructional resources, school-wide and system-wide instructional and assessment program, and guidelines. **(2.3)**
- Observe and participate in classrooms becoming aware of a variety of teaching styles, classroom management techniques, elements of instructional planning, instructional programs and strategies, and classroom organization.
- Develop an awareness of the specific needs of adolescents that are influenced by varying achievement levels, learning styles, developmental progress, and cultural heritage. **(2.1)**
- Develop an understanding of being a reflective practitioner; conceptualizing a teaching philosophy; exploring professional resources, professional development opportunities, professional responsibilities, and collegial relationships. **(1.4)**
- Develop instructional opportunities for adolescents to engage in meaningful learning.

Course Requirements:

- Regular attendance and participation
- Observation, instructional planning, and teaching in the classroom setting
- Lesson plans written by you for any small group or whole class lessons you teach.
- A log for each visit citing activities and reflections in the school setting
- Summaries, reflections and reactions on **three** books from the attached list or others approved by the instructors
- Facility with oral and written expression
(2.1)
- Understanding of and appreciation for the differences and similarities in the needs of others
- Self evaluation and receptivity to the evaluations of others
- Additional requirements based on individual needs

Grading:

Pass/fail grades are given for field experience in the secondary school. Students must meet all course requirements at a satisfactory level to receive a passing grade. Regular feedback will assure that students are aware of their progress.

Field Observation and Participation:

- Engage in reflection and analysis of school and classroom activities and the characteristics of adolescents.
- Be an active participant in the classroom by responding to teacher and student interests; by planning and preparing instructional activities; by taking initiatives to assist students; by establishing a professional rapport with school staff and students; and by exhibiting professional behavior with regard to appearance, promptness, dependability, and comments about or to others.
- Evaluation will be a collaborative judgment by the mentor teacher, site-based coordinator, and the college coordinator.

Weekly Logs:

- Note activities in which you participated.
- Relate your observations and experiences to your readings and class discussions from coursework.
- Note what you have learned.

Book reactions: (2-3 pages due by October 5, November 8, December 8

- Prepare a written reaction to each book summarizing key points, reacting to ideas presented, and indicating possible use in teaching profession.
- Support your position by incorporating knowledge you have gained from your readings, previous coursework and observation experiences.
- Evaluation will be based on quality and clarity of writing; interrelationship of ideas to readings, coursework, and internship experiences.

Lesson Plan Format (If there is a prescribed lesson plan format in your school, use it instead.)

I. **Objectives:** Describe **what is to be learned by the student.** An objective does not describe the teacher's behavior. Teacher behavior is described in the Instructional Procedure.

II. **Motivation:** This describes how you plan to get the students' attention and motivate them to remain involved in the lesson. It often refers to a previous learning activity and/or the learners' prior knowledge.

III. **Instructional Procedure:** This is the logical sequence of steps taken by the teacher and/or students that will flow from the motivation to the middle and the end of the lesson.

- IV. **Closure/Summary:** This describes how the lesson is brought to an end.
- V. **Assessment:** How will you know what the students have learned? The assessment should reflect and measure your original objectives. **(2.3)**
- VI. **Alternatives/Options:** Explain what you plan to do if your current plan fails, takes less time than you expected, or reflects a schedule is changed.
- VII. **Transitions:** Either during or between lessons, explain how you will get the students ready for each part of the lesson and/or for subsequent lesson(s).

Lesson plans must be approved (initialed) by the mentor teacher before the lessons are taught.

Professional Development Schools – Secondary Internship

Key Items/Factors to Observe – As you visit throughout the school and in classrooms, look for WHAT WORKS in the following:

- Behavior management
- Personal characteristics of effective teachers
- Classroom arrangement
- Use of bulletin boards and chalkboards
- Learning centers
- Use of overhead projectors **(2.2)**
- Use of computers **(2.2)**
- Support for special needs students **(2.1)**
- Classroom procedures and routines: sharpening pencils, cleaning desks, lavatory breaks, attendance, preparation for dismissal, home/school communication, office/classroom communication
- Assessment techniques **(2.3)**
- Grading
- Involvement of parents
- Teaching strategies
- Teacher to teacher support

Tie your observations and your readings together as you write your journal entries.

Professional Development Schools – Secondary Internship

Checklist of Key Activities:

- _____ orientation to the secondary school setting: different grade levels, special areas, support services, resources, interdisciplinary connections (2.1)
- _____ understanding of and appreciation for the multitude of teacher responsibilities
- _____ lesson planning
- _____ lesson teaching
- _____ interaction with parents
- _____ interaction with other staff members
- _____ variety of experiences with adolescents (2.1)
- _____ research findings, approaches, best practices
- _____ being aware of and preparing for developmental levels, readiness, assessment, special needs (2.1, 2.2)
- _____ awareness of community aspects that affect educational support for adolescents
- _____ understanding the profession; developing a philosophy; exploring professional resources, developmental opportunities, responsibilities, relationships
 - Participating with mentor in professional development experiences
 - Co-leading with mentor in staff development presentations
 - Observing, participating as appropriate in site-based team, department, and school improvement team meetings
 - Participating in PTA activities
 - Observing pupil services team conferences, parent conferences as appropriate

USING FIELD EXPERIENCE AS PREPARATION FOR STUDENT TEACHING

- ❖ Prepare and present a lesson in your content area incorporating all the elements of an effective lesson.
- ❖ Practice correct manuscript and cursive writing skills by:

- Writing the daily objectives on the board.
- Creating charts for instructional use. **(2.5)**
- Writing comments such as “Good Job” or “Good Try” or “Super” in journals and on seat work. Be specific about what is a “Good Job” e.g., good sentence structure.

- ❖ Learn specific areas and media resources: **(2.2)**
- Select books from the media center.
- Become familiar with and use AV equipment.
- Use computers and available programs.

- ❖ Become familiar with school system resources
- Read curriculum guides.
- Administer and record curricular assessment. **(2.3)**
- Tutor and work with individual students.
- Read and work with large and small groups. **(2.7)**
- Survey classroom resources.

- ❖ Practice good human relations skills:
- Look for opportunities to interact with students
- Demonstrate energy, interests, and enthusiasm.
- Participate with students in their activities.
- Help students with academic concerns.
- Take the initiative in attending before and after school activities in the school, attend sports events, plays, etc.

ED474 Introduction to Reading In the Content Area

Course Description:

Emphasizes the interactive nature of the reading process in content areas. Particular attention given to the link between assessment and instruction, the significance of vocabulary/concept development, and various strategies for gaining information from text and for developing intrinsic motivation with students. **(2.1)**

Text:

Richardson, J. S. & Morgan, R. F. (2000). *Reading to learn in the content areas* (4th ed.). Belmont, CA: Wadsworth.

Course Requirements

1. Attendance and class participation. If you are unable to attend a class, please notify me. One unexcused absence is allowed. Any further unexcused absences will result in the lowering of your final grade.

2. Completion of ten (10) written assignments from selected topics of discussion in class; must be typed; approximately one page in length; 15% of final grade- including both content and mechanics. Due dates announced in advance.
3. Completion of ten (10) quizzes; recall level- not open notebook or text; dates announced in advance; 15% of final grade; completed in class.
4. Mid-term exam; exact date(s) to be determined; recognition level- open notebook and text; completed in class; 30% of final grade.
5. Final exam; exact date to be determined; recognition level- open notebook and text; completed in class; 4W6 of final grade.

Grading :

A	95-100%	C+	74-76%
A-	91-94%	C	70-73%
B+	86-90%	C-	67-69%
B	81-85%	D	64-66%
B-	77-80%	D	60-63%

Course Objectives :

1. Students will have working knowledge of the following areas. (K)
2. Students will be able to perform the following tasks. (P)
 - I. Reading- Overview
 - A. Present State of Reading (K)
 - B. Research Generalizations- *Becoming a Nation of Readers* (K)
 - C. Definitions (K)
 - D. Maryland School Performance Program Reading Outcomes- Three Purposes for Reading (K)

Textbook- Chapter I

- II. Components of Content Area Reading Program/Language Arts Program
 - A. Parent Education and Involvement (K)
 - B. Teacher Education and Attitudes (K)
 - C. Testing and Assessment (K)
 - D. Instruction (K)
 - E. Materials- Print and Non-print (K)
 - F. Research (K)

Textbook- Chapter 3

- III. Reading Instruction
 - A. Approach, Method, Technique (K)
 - B. Major Approaches (K)
 1. Basal (K)

- 2. Literature-based (K)
- 3. Whole Language (K)
- C. Developmental Reading Instruction (K)
 - 1. Basic Reading Instruction (K)
 - 2. Functional Reading (K)
 - 3. Content Area Reading (K)
 - a. Description (K)
 - b. Cognitive and Affective Domains (K)
 - c. DRA/DRTA (K)
- D. Corrective Reading Instruction and Services (K)
- E. Remedial Reading Instruction and Services (K)
- F. Multicultural/Bilingual Instruction and Services (K)
- G. Computer Assisted Instruction (K)

Textbook- Chapter 2

- IV. Language Development and Content Area Instruction
 - A. Relationship Between Language Development and Content Area Instruction (K)
 - B. Definitions (K)
 - C. Instructional Implications and Strategies (K)

Textbook- Chapters 4 and 5

- V. Word Identification Skills/Instructional Implications and Strategies
 - A. Sight Vocabulary (K)
 - B. Picture Clues (K)
 - C. Configuration (K)
 - D. Phonics (K)
 - E. Structural Analysis (K)
 - F. Context Clues (K)
 - G. Dictionary Skills (K)

- VI. Vocabulary Development
 - A. Overview and Rationale (K)
 - B. Word Typing/Concept Development (K)
 - C. Instructional Implications and Strategies (K)
 - 1. Prior Knowledge (K)
 - 2. Discussions (K)
 - 3. Semantic Mapping (K)
 - 4. Semantic Feature Analysis (K)

Textbook- Chapter 8

- VII. Comprehension
 - A. Theories of Comprehension (K)
 - B. MSDE Stance Questions (K)
 - C. Patterns of Text Structure /Organization (K)
 - D. Instructional Implications and Strategies (K)
 - 1. Metacognition (K)

2. Schema Theory (K)

Textbook- Chapter 6

VIII. Assessment

- A. Value and Purpose (K)
- B. Instruments (K)
 - 1. Observation (K)
 - 2. Surveys (K)
 - 3. Group Informal Reading Inventory (K)
 - 4. Individual Informal Reading Inventory (K)
 - 5. Cloze Procedure (K)
 - 6. Standardized Assessments (K)

Textbook- Chapter 7

IX. Reading Expectancy and Causes of Reading Delay

- A. Cognitive Ability (K)
 - 1. Theories of Intelligence (K)
 - 2. Determining Reading Expectancy (P)
- B. Reading Delay (K)
 - 1. Definitions (K)
 - 2. Causes (K)

X. Readability

- A. Overview/Rationale (K)
- B. Fry Reading Graph- Extended (P)

XI. Writing in the Content Area

- A. Writing Process (K)
- B. Instructional Implications and Strategies (K)

Textbook- Chapter 9

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Vacca, R. T. , & Vacca, J.L. (1999). *Content area reading: Literacy and learning across the curriculum* (6th ed.). New York: Longman.

ED 475 TEACHING READING IN THE CONTENT AREA: PART II

Course Description

Designed for pre-service teachers of content subjects. Provides an application of current theory and research into the teaching of reading, writing and study skills to the classroom situation. Through the development of assessment techniques and an awareness of individual differences of students, teachers develop a knowledge base which allows for the teaching of various strategies necessary for the understanding of content material. **(2.1, 2.2)**

Text

No textbook is required for the course. A variety of current content area textbooks will be available on a weekly basis for review (in or out of class) and discussion.

Attendance

If absent, have a member of the class collect handouts for you. Handouts will not be brought back to class the following week.

Course Requirements

1. Attendance and participation in class discussions.
2. Critique and interpret current research pertaining to any content area. Please type the critique using the attached format. Generally one page, no longer than two pages. Due on or before mid-term exam. Present brief overview and copies of critique to class.
3. Mid-term exam; recognition level-take home; exact date to be determined; grade will be doubled.
4. Final presentation: oral presentation of unit developed for content area instruction. Presentation time of approximately 15 minutes. Grade will be tripled. Suggested guidelines:

completed individually or in collaboration with fellow students;
reading, writing and/or study skills as an interactive and
development process; process skills (to include) that help students
construct meaning from a variety of texts:
blending of process skills and product skills; allows students to be
active learners in all aspects of content area instruction;
utilizes narrative text, expository text and/or non-print sources to
promote reading growth and foster motivation;
models and discusses reading, writing and/or study skills as
lifelong activities.

Grading

A=10 A-=9 B+=8 B=7 B-=6 C+=5 C=4 C-=3 D+=2 D=1 F=0

Total points=60

A	=	56-60	95-100%
A-	=	52-57	91-94%
B+	=	45-51	86-90%
B	=	40-44	81-85%
B-	=	34-39	77-80%
C+	=	27-33	74-76%
C	=	22-26	70-73%
C-	=	16-21	67-69%
D+	=	11-15	64-66%
D	=	6-10	60-63%

Course Competencies

Students will demonstrate a basic understanding of:

the theory of cognition;
the importance of language development and vocabulary/concept development during content area instruction;
word classification/typing system and its relationship to reading and writing;
effective techniques and strategies for developing vocabulary and concepts;
school factors that influence student learning;
past and present researchers involved with content area instruction;
the multiple causes of reading problems;
the present state of reading research;
the promotion of the language arts in content areas;
various word identification skills, the three cueing systems, and the instructional implications for a content area;
metacognition and self-cueing systems;
various textbook organizational patterns and structures and its importance to text comprehension;
the importance of adjusting reading rate (fluency) when interacting with text; various study skill techniques to promote understanding of content area information;
a content area writing process for drafting, revising and editing written assignments;
available sources for diagnostic and assessment information regarding students.
(2.1, 2.3)

Students will demonstrate the ability to:

apply reading, writing and/or study skills as an interactive and developmental process (unit presentation);
apply reading as the construction of meaning through prior knowledge, the text, and the context of the reading task;
blend process skills and product skills for instructional purposes;
allow students to be active learners in all areas of content area instruction;
use narrative text, expository text and non-print sources to promote reading growth and foster motivation;
model reading and/or writing as lifelong activities;
utilize formal and informal assessment techniques to link directly with instruction; **(2.3)**
initiate and develop curriculuming process and product skills into content area instruction;
provide students with developmentally appropriate instruction;
apply current literacy and content area research for instructional purposes.

I. Overview of Reading

- A. Present State of Reading- Research from Reid Lyon
- B. Research Generalizations/Instructional Implications

Becoming a Nation of Readers

1. Interactive/prior knowledge
 2. Fluency
 3. Strategic
 4. Motivation
 5. K-12 process
- C. Content Area Reading
1. Attitudes and Perception
 2. Description of Content Area Reading
 - a. Blend of Process and Product
 - b. Cognitive and Affective Domains
 - c. Emphasis on Expository Text
- D. Textbook Organization/Structure
1. Organizational Patterns
 2. Instructional Implications
- E. Comprehension and Assessment- Research from Dolores Durkin **(2.3)**
- F. Reflection/Final Thoughts
- II. Diagnostic Procedures in Content Area Classrooms **(2.4)**
- A. Decision Model for Diagnostic Teaching
1. Multiple Causes of Reading Problems
 2. Grouping Issues
 3. Instructional Decision Making
 4. Feedback to and from Students
- B. Formal and Informal Sources of Diagnostic Information/Link to Instruction **(2.3)**
1. Fellow Professionals and Paraprofessionals
 2. Parents
 3. Record Folders
 4. Additional Sources
- C. Group Administered Content Area Informal Reading Inventory
- D. Individual Informal Reading Inventory/Operational Definitions for Comprehension Assessment **(2.3)**
- E. Cloze Procedure
- F. Reflection/Final Thoughts
- III. Vocabulary/Concept Development and Assessment in Content Area Classrooms **(2.3)**
- A. Overview/Rationale-Significance of Language Development-Research from MSDE and John Pikulski
- B. Word Classification/Typing System
1. Type 1 – Automaticity
 2. Type 2 – Multiple Meaning
 3. Type 3 – Low Abstract Concepts
 4. Type 4 – High Abstract Concepts
 5. Instructional Implications and Concept Development Strategies
 6. Word Identifications Skills and Three Cueing Systems

- 7. Signal Words
 - C. Summary – Research from Herman and Dole
 - D. Reflection/Final Thoughts

- IV. Thinking Skills in Content Area Classrooms
 - A. Overview/Rationale
 - 1. Defining the Problem – Research from Barry Beyer
 - 2. Practical Approaches – Research from Barry Beyer
 - B. Relationship between Thinking and Intelligence
 - C. Inferencing Skills
 - D. Instructional Implications
 - E. Reflection/Final Thoughts

- V. Organizing for Instruction in Content Area Classrooms
 - A. Learning Strategies – Research from Deshler and Alley
 - B. Metacognition and Self-cueing Strategies
 - C. Before Reading Activities
 - D. During Reading Activities
 - E. After Reading Activities
 - F. Additional Strategies
 - 1. SQR3R
 - 2. DRA
 - 3. DRTA
 - G. Reflection/Final Thoughts

- VI. Study Skills in Content Area Classrooms
 - A. Overview/Rationale – Significance of Study Skills
 - B. Study Skills and Instructional Implications
 - 1. Listening Skills
 - 2. Reading
 - 3. Math
 - 4. Social Studies/Science
 - 5. Research Skills
 - 6. Test Taking
 - 7. Notetaking
 - 8. Homework
 - 9. Time Management
 - 10. Organizational Skills
 - C. Reflection/Final Thoughts

- VII. Adapting Instruction in Content Area Classrooms (2.1)
 - A. Overview/Rationale – Significance of Adapting Instruction
 - B. Developmentally Appropriate Instruction
 - C. Reflection/Final Thoughts

- VIII. Integrated Language Arts in Content Area Classrooms

- A. Overview/Rationale – Significance of Integrated Language Arts
- B. Examples of Integrated Language Arts Activities
- C. Content Area Writing Process
- D. Reflection/Final Thoughts

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COURSE:RS496 Introduction to Special Education

COURSE DESCRIPTION/OVERVIEW

Participants investigate the major areas of exceptionality, addressing the characteristics and educational needs of students with orthopedic, visual, hearing, speech, emotional, and mental impairments, and those with learning disabilities. Students explore major physical and psychological characteristics, incidence and etiology, diagnostic and therapeutic services, educational programs, and findings of recent research.

COURSE OBJECTIVES/OUTCOMES

At the end of this course, the student will be able to:

1. Describe the philosophical, conceptual and legal foundations for educating all students with disabilities in the least restrictive environment:
 - 1.1 The developments in psychology, education, and public policy that have influenced the expansion of special education
 - 1.2 The positive outcomes of including students with mild handicaps
 - 1.3 The positive outcomes of socially integrating regular and special education students
 - 1.4 The effects of P.L. 94-142
 - 1.5 The implications of the 1986 Amendments: P.L. 99-457
 - 1.6 The relationship between litigation and legislation in special education
2. Identify and discuss the legal definitions of the thirteen disability categories currently eligible for services under P. L. 94-142:
 - 2.1 Mental retardation
 - 2.2 Hearing Impairment
 - 2.3 Deafness
 - 2.4 Speech/Language Impairment
 - 2.5 Visual Impairment
 - 2.6 Serious Emotional Disturbance
 - 2.7 Orthopedic Impairment
 - 2.8 Other Health Impairment
 - 2.9 Specific Learning Disability
 - 2.10 Multiple Disabilities
 - 2.11 CINA
 - 2.12 Deaf-Blindness
 - 2.13 Autism

- 2.14 Traumatic Brain Injury
- 3. Describe service delivery models and the implementation of LRE guidelines
 - 3.1 Define and describe a continuum of services
 - 3.2 Identify multiple models of service delivery
 - 3.3 Describe the advantages and disadvantages of labeling in the identification process.
 - 3.4 Compare and contrast categorical versus non-categorical or cross categorical service delivery.
 - 3.5 Compare and contrast the inclusion position statements of various professional and advocacy groups
- 4. For each category of exceptionality:
 - 4.1 Describe the physical, cognitive and psychological characteristics of students.
 - 4.2 Describe the etiology and /or the contributory factors of the disability.
 - 4.3 Describe the effects of the disability on learning.
 - 4.4 Describe the assessment process for determining the appropriate special education program. **(2.3)**
 - 4.5 Identify the appropriate curricular approach(es).
 - 4.6 Describe the process for providing special education support and related services.
 - 4.7 Describe classroom adaptations and modifications.
 - 4.8 Identify methods for evaluating educational progress.
 - 4.9 Describe the transitional, residential, and vocational issues associated with the disability.
- 5. Describe the concerns of specific culturally diverse groups: **(2.1)**
 - 5.1 Black Americans
 - 5.2 Hispanic Americans
 - 5.3 American Indians
 - 5.4 Asian Americans
- 6. Identify model practices in service delivery for culturally diverse exceptional children. **(2.1)**
 - 6.1 The adequacy of assessment and placement procedures. **(2.3)**
 - 6.2 The provision of appropriate support services.
 - 6.3 The integration of school and cultural background.

REQUIRED READINGS

1. Smith, D. D., & Luckasson, R. (1995). Introduction to special education: Teaching in an age of challenge (2nd ed.). Boston: Allyn & Bacon.
2. In addition to the textbook, students will be responsible for additional selected readings. Some handouts will be provided.

REQUIREMENTS/ASSIGNMENTS

1. Quizzes (11).
Quizzes will relate directly to the assigned weekly readings and lecture. Quizzes are administered during class sessions. Missed quizzes may **NOT** be made up.

- The lowest grade will be dropped.
2. Participation. Student grades will be determined by attendance and participation in activities and discussions.
 2. Service-learning Project. Students will spend 20 hours observing and volunteering in settings serving students with disabilities. The observation sites will be coordinated and supported through the Center for Values and Services. Students will spread the required hours over the semester for a **MINIMUM** of 8 visits in order to maximize their relationship with children and staff members. In addition to the observations, students will maintain a reflection log (comprised of **at least 8 detailed entries about 3-5 pages each**), will write responses to assigned questions, and will discuss their experiences in class. Specific guidelines for the observations, reflection logs, written responses, and class presentation will be distributed and discussed in class.

EVALUATION SYSTEM

The course letter grade will be determined by a point system where

A = 93-100	B = 83-87	C = 73-77	D = 63-67
A- = 90-92	B- = 80-82	C- = 70-72	F = 0-62
B+ = 88-89	C+ = 78-79	D+ = 68-69	

1. Quizzes - 70%
2. Participation - 6%
3. Service-learning Placement and Reflection Logs – 24%

SCHEDULE OF CLASSES AND TOPICS

Class	Topics
1	Course Introduction and Requirements Introduction to Special Education Assignment Due: NONE
2, 3 & 4	History and Context of Special Education Legislation and Litigation Issues in Spec. Ed. Assignment Due: S&L Chap 1, Handouts & QUIZ
5, 6 & 7	Service Delivery in Special Education Assignment Due: S&L Chap 2 & QUIZ
8 & 9	Hearing Impairments Assignment Due: S&L Chap 10, QUIZ, & Reflection logs 1 and 2 due 9/28
10 & 11	Speech and Language Impairments Assignment Due: S&L Chap. 5 & QUIZ
12, 13 & 14	Learning Disabilities Attention Deficit Disorder Assignment Due: S&L Chap 4 & QUIZ
15 & 16	Spring Break Assignment Due: None
17	Service-learning Analysis

18 & 19	Assignment Due: Bring completed questionnaire Mental Retardation
20 & 21	Assignment Due: S&L Chap 6 & QUIZ Serious Emotional Disturbance
22 & 23	Assignment Due: S&L Chap. 8 & QUIZ Cultural Diversity
QUIZ	Assignment Due: S&L Chap 3, Logs 5&6 due 11/4 &
24 & 25	Visual Impairments Assignment Due: S&L Chap 11 & QUIZ
26 & 27	Autism Assignment Due: Chapter 12 – Autism section and Chapter Reflection Logs 7 and 8 due 11/8 & QUIZ
Handout,	
28	Easter Break
29, 30, & 31	Orthopedic Impairments Other Health Impairments Traumatic Brain Injury Course Evaluations
Autism &	Assignment Due: S&L Chaps 9 and 12 except section on QUIZ – Physical Disabilities

There is NO final exam for this course.

READING LIST/BIBLIOGRAPHY

1. Smith, D. D., (1995). Study guide for introduction to special education. Boston: Allyn & Bacon.

The textbook and study guide are available in the Loyola bookstore in the Andrew White Students Center.

WELCOME AND INTRODUCTION

Welcome to your internship experience. It is our hope that your time at your assigned school(s) will be a supportive learning experience for you. This booklet will explain the assessment project in which you will participate this year. Please keep in mind that this project is a learning experience for all of us and we need your input. However, we do believe it will benefit you greatly by providing guidance and concrete, creative feedback.

The purpose of this assessment process is to assess whether the intern is prepared to practice responsibly as the primary teacher of record for students.

Assumptions about this process are as follows:

We recognize the complexity of teaching and learning.

We will focus on teacher actions and decision-making with an emphasis on reflection and feedback.

We recognize that the beginning teacher is beginning but has a wealth of experience.

We offer this process as a continual learning experience for all.

AUDIENCE

Our audience includes interns, mentors, and college supervisors. As a professional development school, all teachers and staff are involved.

STANDARDS

The standards used as a basis for the assessment are INTASC, developed by the Interstate New Teachers Assessment and Support Consortium. These national standards are comparable to the Essential Dimensions of Teaching (EDoT), developed by the Maryland State Department of Education (MSDE).

INTEGRATED AND HOLISTIC ASSESSMENT

Using INTASC as our framework and keeping in mind our purpose, we chose to use a holistic approach that integrates the decision-making and actions of a teacher. Teaching

is complex and we have a great appreciation of that fact. This integrated and holistic assessment approach will consist of the following:

- Guidelines for a Unit Plan;
- 10. Observation tool to be used by administrators, mentors, and college coordinator or supervisor;
- 11. Checklist of activities;
- 12. Portfolio development by the intern with the assistance of mentors and college coordinator or supervisor;
- 13. Team review of portfolio and team interview.

SUGGESTIONS

- 3 Review this packet carefully so you are aware of expectations.
4. Express your concerns to the college supervisor or coordinator.
5. Plan ahead for your unit plan. Talk to your mentor(s) about long-range planning.
6. Get to know the students and the entire school community.

TIMELINES

Undergraduate Fall Internship II Cycle

September	Orientation - Internship I
October	Assessment guidelines distributed
October to December Activities or	Internship I Fall Field Experience - Appropriate
January to May Activities	Internship I Spring Field Experience - Appropriate
August process	Internship II Orientation and review of the portfolio
August to December	Internship II
October	Seminar on portfolio and review progress
January	Seminar to review portfolio process
January	Putting the portfolio together
February	Portfolios due for review by assessment team
February	Portfolio assessment teams review experience and portfolio

Graduate Fall Internship II Cycle

January	Orientation - Internship I
	Assessment guidelines distributed
January to May	Internship I Spring Field Experience - Appropriate Activities
August	Internship II Orientation and review of the portfolio process
August to December	Internship II
September	Seminar on portfolio and review progress
October	Seminar to review portfolio progress
October and November	Putting the portfolio together
December	Portfolios due for review by assessment team
December	Portfolio assessment teams review experience and portfolio

Graduate and Undergraduates Spring Internship II Cycle

September or January	Orientation - Internship I
September	Assessment guidelines distributed
October to December	Internship I Fall Field Experience - Appropriate Activities
January to May	Internship II Orientation and review of the portfolio process
January	Seminar on portfolio and review process
February	Seminar to review portfolio progress
March and April	Putting the portfolio together
April	Portfolios due for review by assessment team
April/May	Portfolio assessment teams review experience and portfolio

Proposed Intern Activities for the Internship I

The following timeline is suggested for all Loyola students in the Teacher Education Program for their Internship I Field Experience placements. The activities proposed in this timeline, in conjunction with the intern checklist, and the weekly seminars would constitute the minimum requirement for all interns in their Internship I Experience. These suggested activities should be adapted to meet the needs of the intern. It is recommended that interns exceed the minimum requirements.

Visit Number

Suggested Activities

Visit One:

Tour of the building.
Meet with members of the department.
Become familiar with forms used in the classroom.
Observe classes.

Visit Two:

Observe classes.
Become more familiar with classroom procedures.
Be involved in class activities, where appropriate.
Co-plan a drill to be taught during the next visit.

Visit Three:

Teach a drill.
Become more involved with class activities.
Co-plan a portion of the lesson for the next visit (@ 15 minutes).

Visit Four:

Teach a portion of the lesson.
Co-plan a thirty minute segment of the lesson for the next visit.
Grade and record a set of papers according to the mentor's standards. **(2.3)**
Independently plan a drill for the next visit and submit the drill to the mentor for approval.

Visit Five:

Teach the drill and a thirty minute portion of the lesson.
Begin planning a full lesson to be taught during the 8th visit.

Visit Six:

Plan a drill for the next visit.
Take attendance and record absences/codes.
Teach drill.
Be an active assistant in the classroom.
Submit a copy of your full lesson plan to the mentor to be reviewed/revised.
Plan a drill for the next visit.

Visit Seven:

Take attendance.
Continue to work with students and assist mentor with activities. Review lesson plan for the next visit, revise as suggested by your mentor.
Coordinate with mentor for copies, transparencies, and/or resources.

Visit Eight:

Teach an entire lesson/class period.
Receive comments from mentor.

INTASC Standards

The principles below were developed by Interstate New Teacher Assessment and Support Consortium (INTASC).

Principle #1 The teacher understands the central concepts, tools of inquiry, and structure of the discipline(s) he or she teaches and can create learning experiences that make these aspects of subject matter meaningful for students.

(1.1, 1.2)

Principle #2 The teacher understands how children learn and develop, and can provide learning opportunities that support their intellectual, social and personal development

(2.5, 2.7)

Principle #3 The teacher understands how students differ in their approaches to learning and creates instructional opportunities that are adapted to diverse learners.

(2.1, 2.4, 2.7)

Principle #4 The teacher understands and uses a variety of instructional strategies to encourage students' development of critical thinking, problem solving and performance skills.

(2.5, 2.7)

Principle #5 The teacher uses an understanding of individual and group motivation and behavior to create a learning environment that encourages positive social interaction, active engagement in learning and self-motivation.

Principle #6 The teacher uses knowledge of effective verbal, nonverbal and media communication techniques to foster active inquiry, collaboration and supportive interaction in the classroom.

(2.2, 2.6)

Principle #7 The teacher plans instruction based on knowledge of subject matter, students, the community and curriculum goals.

Principle #8 The teacher understands and uses formal and informal assessment strategies to ensure the continuous intellectual, social and physical development of the learner.

(2.3)

Principle #9 The teacher is a reflective practitioner who continually evaluates the effects of his or her choices and actions on others (students, parents and other professionals in the learning community), and who actively seeks out opportunities to grow professionally.

(2.10)

Principle #10 The teacher fosters relationships with school colleagues, parents and agencies in the larger community to support students' learning and well-being.

(2.9)

Purpose and Framework

The portfolio will be used to document the intern's accomplishments. The standards for assessing are the Interstate New Teacher Assessment and Support Consortium (INTASC) Standards. The various tools in this assessment process are based on these standards using a holistic approach. We are not looking for discrete, fragmented skills but rather the competency to teach a very complex process. One example of this is the ability to develop plans--both unit and daily, implementing these lessons and assessing both student success as well as intern success in providing a worthwhile learning experience. This and other aspects will be assessed through the Unit Plan and Observation tool. The development of the portfolio provides the intern with the opportunity to reflect, organize and create a document that shows learnings and competencies. The completed portfolio should clearly illustrate through quality not quantity the efforts, which have been taken by the intern to show evidence, that he/she is prepared responsibly as the teacher of record.

Organization of Portfolio

- A three ring binder with dividers is the recommended method of assembling your documents.
- Use INTASC standards and the table of contents to determine your organization of documents.
- For collection purposes it may be helpful to use an expandable folder (one pocket for each INTASC standard). Cross-reference artifacts that relate to more than one standard.
- Develop a cover
- Write a *rational* which explains the organization of your portfolio. This sets the tone.
- Develop a table of contents. The following items should be included:

Rationale

Introduction to Intern

Philosophy of education
Resume
Items of special interest organizations, awards, jobs
Transcript - student copy
Praxis/NTE scores - if available

Internship Experience

Reflection on internship experience
Implications for the future

Content

- Unit plan (one complete)
Lesson plans
- (a) A minimum one per instructional assignment to illustrate a variety of teaching techniques and breadth of content area
 - (b) Modifications of a lesson plan **(2.1)**

Examples of students' work, especially assessment (2.3)

Pictures/video to include delivery of instruction (2.2)

(c) Assessment/Core Learning Goals (2.3)

Examples of student assessments - including modifications

Evidence of lesson(s) used to develop an understanding of the High School Assessment requirements -e.g. writing prompts

Note: When using student's work in your portfolio, please delete name of student.

Acknowledgments (optional)

Commendations from students, parents, colleagues

Professional recommendations

Internship Assessment Process

Preparation and Review

- The team will gather for introduction and learning session on assessment. Interns will be invited.
- 15. The interns will identify on the performance assessment matrix the location in the portfolio of those documents that represent each of the INTASC principles.
- 16. Portfolios and assessment matrix are due two weeks before review to the site coordinator who will make them available in a designated secure location.
- 17. During the two-week period before the portfolio review, all team members will review the portfolios using the Strength and Concern Form supplied by the site-coordinator. The intern's strengths and concerns under each of the ten INTASC principles will be determined by the appropriateness of the documentation chosen by the intern for a particular principle. If the documentation (lesson plan, letter, etc.) demonstrates that the intern understands the relationship between an activity and the principle, then the team member will note this as a strength. If there is a lack of documentation or the document does not demonstrate a particular principle, then this will be noted by the team member as a concern.
- 18. Each team member's Strength and Concern form should be given to the site coordinator who will in turn give all the forms to the case manager.
- 19. The case manager will collate the strengths and concerns noted by the team members. A copy of the case manager's report will be distributed to each team member at the portfolio review.

Final Stage: Gathering of team, facilitator and interns at school

1. The team will review the process and decide on questions to be asked of intern. This will be based on the case manager's report. Some questions will focus on clarification. Other questions will be the same for all of the interns and will be distributed to the interns the day of the review. (20 minutes)
2. The intern will be invited to join the team:
 - a) the intern will discuss the portfolio in terms of growth and present one item (5-10 minutes)
 - b) the intern will answer questions (20 minutes)
3. The team will discuss in order to make decision. (25 minutes)
4. The team will inform the intern of the decision with supportive reasons.

5. Using the report and comments at the review, the case manager will write a narrative.
6. This narrative will be shared with the intern by the college coordinator within one week of interview.

Narrative:

The audience and the purpose for the narrative is as follows:

- Intern for reflection
- School system for job opportunities
- College for program review and credential files
- Mentors and site coordinators for information and direction.

The narrative should begin with a clear and specific opening statement about the intern. It should be reader friendly and bolding, subheadings, and key points underlined. After the opening statement, the structure should be based on the INTASC principles and how well the intern demonstrated them.

Team Review

Team

- Team will consist of two external evaluators, mentors, and college coordinator.
- A facilitator will make sure the focus is maintained and facilitate the process as indicated below. This person will not be involved in making the decision.
- One external evaluator will be from local school system and one will be a teacher from another Loyola PDS.

Preparation

1. Team will gather for introduction and learning session on assessment.
2. All members of the team will review portfolios which will be available in a designated secure location in the school.
3. Review of the portfolio and written report will be based on the INTASC standards.

Gathering of team, facilitator and intern

1. Team will review the process and decide on questions to be asked of intern.
2. Intern will be invited to join the team.
 - a. Intern will discuss the portfolio in terms of growth and present one item from the portfolio. (5 to 10 minutes)
 - b. Intern will answer questions of clarification. (20 minutes)
3. Team will discuss in order to make decision.
4. Team will inform intern of decision with supportive reasons.
5. Team will write narrative.
6. Narrative will be shared with intern by the college coordinator.