

DEPARTMENTS OF INSTRUCTION

BIOLOGY (BIO)

Chairman: Dr. Paul Machowicz, S.M.

The courses marked with an asterisk are intended primarily for graduate students in Education. Prerequisite for enrolling in any of these courses for credit toward the M.S. in Education degree is standard teacher certification in the field of Biology.

*BIO 303 Physiology	3 credit hours
Prerequisites: BIO 101-2, CHM 123-4 or equivalent, CHM 313-314 recommended.	
*BIO 303L Physiology Lab (3 clock hrs.)	1 credit hour
Course to accompany BIO 303 lecture. Prerequisites: BIO 101-102, General Biology, CHM 123-124, General Chemistry or CHM 110 or equivalents.	
*BIO 312 General Genetics	3 credit hours
Prerequisites: BIO 101-2 and MTH 121.	
*BIO 312L General Genetics Lab (2 clock hrs.)	1 credit hour
Course to accompany BIO 312. Prerequisites: BIO 101-102, MTH 107, College Algebra or MTH 121 or equivalents.	
*BIO 316 Plant Morphology	2 credit hours
Prerequisites: BIO 101-102 and BIO 220.	
*BIO 316L Plant Morphology Lab (2 clock hrs.)	1 credit hour
Prerequisite: A course in General Botany.	
BIO 320 Evolution	3 credit hours
*BIO 324L Entomology Lab (2 clock hrs.)	1 credit hour
Prerequisite: Biology or Zoology one year.	
*BIO 324L Entomology Lab (2 clock hrs.)	2 credit hours
Course to accompany BIO 324 lecture.	
BIO 325 Parasitology	2 credit hours
BIO 325L Parasitology Lab	1 credit hour
Course to accompany BIO 325.	
BIO 330 Plant Physiology	3 credit hours
Prerequisite: BIO 220 General Botany.	
BIO 330L Plant Physiology Lab	1 credit hour
A course to accompany BIO 330.	
*BIO 361 Invertebrate Zoology	2 credit hours
Prerequisites: BIO 101, 102.	
*BIO 361L Invertebrate Zoology Lab	2 credit hours
Course to accompany BIO 361 lecture.	
BIO 501 Seminar	1 credit hour
Practice in development, presentation, and discussion of papers dealing with Biological problems. Open only to advanced undergraduate and graduate Biology Majors.	
BIO 503 Advanced Genetics	3 credit hours
An analysis of the nature of the gene and gene action. The course will review	

recent advances in biochemical and physiological genetics, cytogenetics, population genetics and radiation genetics. The laboratory sessions will deal with design and analysis of experiments in quantitative genetics and estimation of components of variance due to genetic and non-genetic causes.

***BIO 504 BIO-Lab Techniques**

3 credit hours

The course will be devoted to the presentation of methods of collecting, preserving and preparing biological materials for classroom use. The course is also designed to acquaint teachers with lecture demonstration skills and laboratory techniques applied to the biological sciences. Open only to graduate students registered in the Master Teacher Program.

BIO 505 Protozoology

3 credit hours

A study of the protozoa, their structure and physiology, their importance in experimental biology and their relation to other micro-organisms.

BIO 507 Endocrinology

3 credit hours

A functional analysis of the mechanism and activity of the endocrine system. Emphasis will be placed on hormonal regulation of metabolism and growth.

***BIO 508 Field Biology**

3 credit hours

The course is designed to acquaint the student with the local flora and fauna. Field trips will be used to apply techniques in the observation and study of organisms in their natural environment. Relationships between organisms and their environment as well as some aspects of limnology will be stressed.

BIO 511 Cellular Physiology

3 credit hours

Basic concepts of the structure, physiology and bio-chemistry of cells and subcellular particulates will be studied. Emphasis will be placed on the mechanisms of energy transfer in living cells, membrane phenomena and enzyme activity.

BIO 513 Mycology

3 credit hours

Biology of the fungi and slime molds. Lectures will deal with the taxonomy, morphology, cytology, physiology and genetics of the fungi. Laboratory work will deal with morphological, pure culture and experimental work with the fungi.

BIO 515 Bacterial Physiology

4 credit hours

A study of the metabolic and biosynthetic activities of bacteria; how they affect their environment and how it influences them. To be accompanied by a laboratory period designed to familiarize the student with some of the basic biochemical techniques used in the study of bacterial physiology. *Prerequisites:* BIO 411 and biochemistry, or the consent of the instructor.

***BIO 520 Principles of Biology**

3 credit hours

This course is specifically designed as an introduction to modern biology. This is a background course open only to graduate students registered in the Master Teacher Program.

BIO 590 Pro-Seminar or PHL 505

3 credit hours

The relevance of science to all other knowledge; problems dealing with the interrelations of science, Philosophy, Education and Government. (May be replaced by PHL 505.)

BIO 599 Thesis

3-6 credit hours

CHEMISTRY (CHM)**Chairman: Dr. Cletus Chudd, S.M.**

The courses marked with an asterisk are intended primarily for graduate students in Education. Prerequisite for enrolling in any of these courses for credit toward the M.S. in Education degree is standard teacher certification in the field of Physical Science or in Chemistry.

***CHM 412 Intermediate Organic Chemistry 3 credit hours**

Prerequisite: One year of Basic Organic Chemistry

***CHM 417 Inorganic Chemistry 3 credit hours**

Prerequisite: CHM 215-216 Quantitative Analysis, or the equivalent.

***CHM 501 Principles of Chemistry I 3 credit hours**

The subjects treated in this course are: atomic structure, chemical bonding, chemical equilibrium, inorganic nomenclature, theory of solutions, acid-base concepts, periodic properties of the elements, radiochemistry and nuclear reactions. Prerequisite: One year of College Chemistry.

***CHM 502 Principles of Chemistry II 3 credit hours**

The subjects treated in this course are: thermodynamics, chemical kinetics, redox reactions, organic chemistry (nomenclature, functional groups, preparation and properties or organic compounds). Prerequisite: CHM 501.

CHM 503-504 Advanced Inorganic Chemistry 6 credit hours

Current views on atomic theory and atomic structure, chemical bonding, periodic properties of the elements, inorganic nomenclature, coordination compounds, acid-base systems, nuclear chemistry, properties and compounds of families of elements.

CHM 505-506 Advanced Organic Chemistry 6 credit hours

Molecular orbital and resonance theories, conformational analysis, stereochemistry, correlation of molecular structure with physical and chemical properties, reaction mechanisms, heterocyclic chemistry.

CHM 507-508 Advanced Physical Chemistry 6 credit hours

Classical thermodynamics with emphasis on non-ideal systems and chemical reactions. Introductory quantum theory, chemical bonding and the structure of molecules. Chemical kinetics, empirical kinetics and reaction mechanism, absolute reaction rate theory.

CHM 510 Pro-Seminar 3 credit hours

The impact of Chemistry on present-day society: sociological, economical, and ethical factors.

CHM 511 Biochemistry 3 credit hours

Review of structure of carbohydrates, lipids and proteins, followed by the metabolic path of each group. Energy metabolism, inorganic metabolism and enzyme systems will also be treated.

CHM 512 Special Techniques in Biochemistry 3 credit hours

This course comprises the study of cellular respiration enzyme kinetics, chemical and physical methods of biochemical analysis, and the use of radioisotopes in metabolism by means of special equipment such as the Warburg microrespirometer, recording spectrophotometer, recording oxygen cathode, fluorometer, high speed centrifuge, paper electrophoresis, and radioisotope scintillation tube with attached scaler.

CHM 514 Advanced Analytical Chemistry 3 credit hours

Theoretical topics of analytical Chemistry, particularly as applied to electrical and optical methods of instrumental analysis.

CHM 520-521 Research 6 credit hours

ECONOMICS (ECO)**Chairman: Dr. Edmund B. O'Leary**

Prerequisite for enrolling in any of the following courses for credits toward the M.S. in Education degree is "ECO 201-202 Principles of Economics" or the equivalent.

ECO 501 Advanced Principles of Economics 3 credit hours

A review and analysis of the fundamental principles underlying the economic system.

ECO 503 History of Economic Doctrine 3 credit hours

Development of economic concepts and theories from the Mercantilists to the present period.

ECO 505 Consumer Economics 3 credit hours

A study of the economic forces which influence the consumer in his choice and use of goods and services; and of the public and private agencies which afford protection, information, and assistance to the consumer.

ECO 507 Current Economic Problems 3 credit hours

An analysis and discussion at an advanced level of current economic issues and problems.

ECO 520 Economics of Government 3 credit hours

A survey of government and business relationships in the American economy and the impact of government on private enterprise.

ECO 525 Graduate Seminar in Economics 3 credit hours

Special studies and discussions of economic problems and trends.

EDUCATION (EDU)**Chairman: Dr. Louis J. Faerber, S.M.****EDU 325 Social Studies in the Elementary School 3 credit hours****EDU 431 Visual and Other Sensory Aids in Education 2 credit hours****EDU 435W Arithmetic in Intermediate & Upper Grades—
Level Two 3 credit hours**

This workshop deals with the individualized arithmetic program in grades, 4, 5, 6, 7, 8. It is designed for those who have completed a Level One workshop or the equivalent.

EDU 448 Psychodynamics of Behavior 3 credit hours

Prerequisites: This course replaces the previous prerequisites of Mental Hygiene and Abnormal Psychology for the Guidance and Counseling Program; students who have already completed this dual requirement on the undergraduate level should not take this course.

EDU 451W Advanced Kindergarten-Primary Instruction 3 credit hours

Prerequisite: EDU 450W Kindergarten-Primary Instruction or other Kindergarten Methods course.

EDU 480 The Psychology of Slow Learning Children 2 credit hours

Enrollment limited to teachers with positions (or prospective positions) in special education.

EDU 484 Language Arts for Slow Learning Children 2 credit hours

Prerequisite: EDU 480.

EDU 485 Social Studies for Slow Learning Children 2 credit hours

Prerequisite: EDU 480.

- EDU 486 Arithmetic for Slow Learning Children** 2 credit hours
Prerequisite: EDU 480.
- EDU 487 Occupational Orientation and Job Training** 2 credit hours
 A course in special education for teachers of slow learning children. *Prerequisite:* EDU 480.
- EDU 500W Mathematics in Elementary Grades** 2 credit hours
 A graduate workshop designed to produce college teachers and school supervisors of the Individualized Arithmetic Program. Demonstration of how the logical patterns of mathematical thought which are inherent in arithmetic can be readily acquired by pupils.
Prerequisite: Completion of a Level One Workshop, one year's experience in teaching the Individualized Arithmetic Program, and the imminent prospect of teaching the Individualized Arithmetic Program to teachers.
- EDU 501 Advanced Educational Psychology** 3 credit hours
 Current concepts of learning and development with emphasis on the learning process.
- EDU 502 Comparative Philosophies of Education** 3 credit hours
 The historical development of educational philosophies. Evaluation of major current philosophies. Significant problems of the present day in educational philosophy.
Prerequisite: EDU 419 Philosophy of Education, or equivalent where the student has already achieved a norm for evaluating the theories of modern education.
- EDU 503 Research Methodology and Statistics** 3 credit hours
 Comprehension of educational statistics and terminology of research. Major techniques and methods of research for intelligent consumption. Specific techniques and guides for efficiently locating research on a given problem, reading critically, and drawing logical inferences. (The student will here be expected to initiate plans for an acceptable Field Project.)
- EDU 504 Advanced Child and Adolescent Psychology** 3 credit hours
 Deals with the principal areas of growth and development through adolescence with special emphasis on mental development. Required of students following the School Guidance and Counseling Program.
- EDU 506 School Administration** 3 credit hours
 General principles governing the administrative functions of planning, organizing, and controlling are presented and applications are made in the administration of both elementary schools and secondary schools.
- EDU 507W The Principalship of the Catholic Elementary School** 2 credit hours
 This workshop seeks to apply the principles of administration to the Catholic Elementary School. Particular attention is placed upon human relationships, in-service education of the professional staff, securing community participation in school policy formation, pupil personnel problems, curriculum development, and managerial responsibilities of the principal. *Prerequisite:* Admission to graduate standing in the School of Education.
- EDU 509 School Supervision** 3 credit hours
 A course in planning, organizing, and administering instructional supervision in public and private (parochial) school systems. Field observation required.
- EDU 511 Elementary School Curriculum** 2 credit hours
 A fundamental course in curriculum development designed to prepare the student for effective participation in cooperative efforts to improve the curriculum. Attention is directed to curriculum issues and to desirable instructional practices in the major areas of curriculum.

- EDU 512 Secondary School Curriculum** **2 credit hours**
A fundamental course in curriculum development designed to prepare the student for effective participation in cooperative efforts to improve the curriculum. Attention is directed to curriculum issues and to desirable instructional practices in the major curriculum areas.
- EDU 513 Elementary School Evaluation** **2 credit hours**
Centers attention on systematic, total school self-evaluation as the basis for school improvement programs.
- EDU 514 Secondary School Evaluation** **2 credit hours**
Centers attention on systematic, total school self-evaluation as the basis for school improvement programs.
- EDU 515 School Law** **2 credit hours**
Problems in school administration which may give rise to court action. Ohio school law will be emphasized.
- EDU 517 School Finance** **2 credit hours**
A course for school administrators covering principles of school finance, technical problems of budgeting, source of income, purchasing, accounting, and debt service.
- EDU 518 School and the Social Order** **3 credit hours**
The relationship of school to the total cultural pattern and the development of interaction between school and community are appraised and concrete suggestions are presented. The nature of the individual child and his relations with society and culture; the special culture of the school and its accompanying social world; school, teacher, and community relations.
- EDU 519 Principles of Guidance** **2 credit hours**
An introduction to the scope and aims of guidance; an introductory treatment of the basic guidance services and how the counselor and the teacher can make efficient use of them.
- EDU 521 School Public Relations** **2 credit hours**
Covers philosophy and techniques of school-community relations for educational leaders. Attention given to parent contacts, citizens' participation, press, radio, television, printed material and other media.
- EDU 523 Occupational Information and Community Resources** **2 credit hours**
Selection, utilization, and evaluation of educational and occupational information materials. Familiarization with standard labor market data and resources of the local community.
- EDU 527W Business Systems and Data Processing** **3 credit hours**
A graduate workshop in business automation, related procedures, and equipment. Designed to develop a program of approach the secondary schools can use in educating students in office automation and business data processing. Explanation of the Cooperative Office Education Program of the Department of Education, State of Ohio, is included. This workshop fulfills a requirement for COE certification.
Prerequisite: High School Certification in Business Education.
- EDU 530 Psychology of Individual Differences** **2 credit hours**
Nature, extent, and significance of variability; hereditary and cultural influences; theories of intelligence; trait organization; group differences.
- EDU 533. Psychometrics** **3 credit hours**
Lectures and demonstrations in the principles and application of psychological measurement, with particular emphasis on standardized group tests of intelli-

gence and scholastic achievement, interest tests, personality tests, and other areas pertinent to the guidance function. Practicum in test selection, use, and interpretation.

Prerequisites: EDU 448, 503. *Recommended:* EDU 519.

EDU 534 Interpretation of Individual Tests 2 credit hours

Intensive study of major theoretical problems concerning the use and interpretation of individual psychological tests. Particular attention is devoted toward interpretation of the Stanford-Binet, Wechsler Intelligence Scale for Children, the Bender Gestalt, and projective techniques. Emphasis is placed upon use of individual test results in the counseling program.

Prerequisite: EDU 533.

EDU 539 Administration of a School Guidance Program 2 credit hours

Planning, developing and administering school testing and guidance services and group guidance in the homeroom. This course covers also such matters as in-service training of guidance personnel, facilities, supplies, assembling and disseminating educational and occupational information, and liaison with both teachers and school administrators.

EDU 541 Case Studies in School Guidance and Counseling 2 credit hours

Supervised experiences in typical school guidance policies and practices. Such experience will include: vocational guidance, educational guidance and curriculum structures, cumulative folder, interpretations, counseling procedures.

EDU 543 Principles and Techniques of Counseling 3 credit hours

Basic theories, principles and techniques of counseling. A consideration of directive, non-directive and eclectic techniques as a function of the intelligence and grade-level of the child. Ethical considerations.

Prerequisites: EDU 448, 503, 533. *Recommended:* EDU 519.

EDU 544 Practicum in Counseling Techniques 2 credit hours

Supervised experience in counseling, using role-playing and actual counseling cases. Both group and individualized instruction and supervision. Guidance Center facilities will be utilized as a training center.

Prerequisites: EDU 448, 503, 519, 533, 543. *Recommended:* EDU 523.

EDU 547 Psychology of Exceptional Children 2 credit hours

Deals with the intellectual deviate, the socially and emotionally maladjusted. Concentration on educational guidance for the gifted and the mentally retarded.

Prerequisites: EDU 448, PSY 306 or EDU 207.

EDU 550 Reading Problems and the Guidance Program 2 credit hours

Understanding the nature of the problem. Practicum in diagnostic and remedial reading.

Prerequisite: EDU 519.

EDU 551, 552, 553, 554, 555, 556 Child Study Project 1 credit hour

An in-service project in schools under the supervision of the Tipp City Exempted Village Schools and the Tipp City Superintendent. One graduate credit per semester with a maximum of six credits in this series. These courses involve the direct study of children throughout the school year. Each participant gathers a wide body of information about a pupil, presents the accumulated data from time to time to the study group for underlying the child's behavior, learning, and development. Provides opportunity for teachers in service to earn credit for participation in their own local child study group. The study group sessions meet 18 times a semester. (These projects must be registered for in sequence and they yield one semester hour per project per semester.)

EDU 558W Child Study Leadership Workshop 2 credit hours

This workshop is designed to train teachers and school counselors for leadership roles in the Child Development Laboratory as conducted within approved school systems. It is in cooperation with the University of Maryland's sponsored Institute for Child Study.

Provides training to persons who plan to participate as group members or leaders in the Child Study Program sponsored by the Institute. The workshop will provide suitable experience in its own right for persons whose role in schools can be enhanced through deeper understanding of children and youth, e.g., area principals.

EDU 560 Library Guidance for Teachers 2 credit hours

Trains the teacher to make use of the available services and resources of the standard school library in behalf of a well-rounded education for pupils. Acquaints the class with library organization, reference material, indexes, and bibliography. Not designed for teacher-librarians.

EDU 561W Community Resources in Elementary Teaching

This workshop aims to give elementary teachers background for their teaching (particularly in the social studies area) by taking them behind the scenes in local government, social agencies, key industrial plants, and historical sites. Dayton and the Miami Valley will be the laboratory.

EDU 562 School Provisions for Individual Differences 3 credit hours

Studies the different traits and abilities of pupils and ways whereby teaching might be adjusted to these differences. Special attention focused on the slow learner, the gifted student, and the educationally retarded child.

EDU 563 Diagnosis and Remedial Reading 3 credit hours

A study of the major factors associated with reading difficulties, techniques that might be used to diagnose the nature and causes of pupil difficulty, and the methods by which remedial adjustments can be made. Demonstrations and directed observation of teaching.

Prerequisite: EDU 303 Reading in the Elementary School or 320 Reading and Language Arts in Elementary School.

EDU 564 Advanced Science in Elementary School 3 credit hours

This workshop is designed to train elementary school teachers to integrate science with all phases of the curriculum—by research projects in the basic areas of astronomy, biology, chemistry, geology, physics, and air-age education. Teachers also have the opportunity to study and evaluate the visual aids now available in the field of science.

Prerequisite: EDU 460W Science in the Elementary School or another college course in physical science.

EDU 565 Group Techniques in the Classroom 3 credit hours

A comprehensive study will be made of classroom grouping in both primary and intermediate areas of the elementary school. A practical approach is planned for the study of all phases of grouping; initial class appraisals, deciding individual needs, class grouping, manipulation of social differences, and planning for effective group instruction; homogeneous and heterogeneous grouping; also a unique plan of random grouping will be presented.

EDU 566W The Education of Gifted Children 2 credit hours

The workshop will deal with formal and informal methods of identifying giftedness, the potentials and problems of the gifted, assessment of special school programs, and positive provisions for the instructional program.

EDU 590 Field Project**3 credit hours**

An on-the-job research project that investigates a problem that stems from an actual need for the purpose of effecting improvement of either one's own professional practice or of the school setting in which the investigator works. It is accompanied by a seminar session on the campus held once a week.

Prerequisite: Admission as a candidate for a degree.

ENGINEERING**Dean: Dr. Maurice R. Graney****CHEMICAL ENGINEERING (CME)****CME 501 Advanced Thermodynamics****2 credit hours**

Advanced topics of thermodynamics with applications.

Prerequisite: CME 303 or equivalent. (Open for enrollment of undergraduate students.)

CME 502 Fluid Flow**2 credit hours**

A study of compressible and incompressible flow with applications.

Prerequisite: CME 311 or equivalent. (Open for enrollment of undergraduate students.)

CME 503 Advanced Unit Operations**2 credit hours**

This course covers diffusional topics, including extraction and multi-component absorption.

Prerequisite: CME 312 or equivalent. (Open for enrollment of undergraduate students.)

CME 504 Heat Transmission**2 credit hours**

A study of the basic concepts of the flow of heat by conduction, convection and radiation.

Prerequisite: CME 311 or equivalent. (Open for enrollment of undergraduate students.)

CIVIL ENGINEERING (CIE)**CIE 502 Prestressed Concrete****3 credit hours**

Discussion of the properties of concrete and prestressing steel. Theory and design of prestressed concrete beams, slabs, circular tanks and rigid frames.

Prerequisite: CIE 407. (Open for enrollment of undergraduate students.)

CIE 504 Limit Design in Steel**3 credit hours**

A review of the physical properties of metal, the theory and application of limit design to simple and redundant members, trusses, and columns. A brief study of connection details.

Corequisite: CIE 406. (Open for enrollment of undergraduate students.)

CIE 506 Ultimate Design of Reinforced Concrete**3 credit hours**

The theory and application of ultimate design in reinforced concrete as applied to the sections of beams, columns and members subject to both bending and direct stress. The latest report of the A.S.C.E.-A.C.I. Joint Committee is reviewed.

Prerequisite: CIE 407. (Open for enrollment of undergraduate students.)

CIE 524 Foundation Design**3 credit hours**

Analysis of earth pressure and stability of natural slopes. Study of frost action, permafrost. The design of spread foundations, pile foundations, caissons, cofferdams, anchored bulkheads, bridge piers and abutments.

Prerequisite: CIE 409; *Corequisite:* CIE 407. (Open for enrollment of undergraduate students.)

CIE 542 Highway Design I**3 credit hours**

Design and construction of pavements, including concrete, asphalt, aggregate and soil cement surfaces. Designs of base courses. Maintenance.

Prerequisite: CIE 405. (Open for enrollment of undergraduate students.)

CIE 544 Traffic Engineering**3 credit hours**

Characteristics of traffic, including the road user, the vehicle, origin, and destination surveys. Traffic regulation, control devices and aids, design, administration and planning.

Prerequisite: CIE 405. (Open for enrollment of undergraduate students.)

ELECTRICAL ENGINEERING (ELE)**ELE 502 Advanced Circuit Analysis****3 credit hours**

Poles and zeros of polynomial functions and networks. Numerical procedures. Chebyshev and Taylor approximations to brick wall functions. Elementary and modern synthesis. Low pass and band pass amplifiers. Feedback amplifiers and stability.

Prerequisites: ELE 413, MTH 341. (Open for enrollment of undergraduate students.)

ELE 503 Analog Computers**3 credit hours**

The discussion and analysis of linear electrical computing elements in conjunction with electronic differential analysis. The utilization of electrical and electronic circuits for the performance of linear operation, for multiplication and division, and for function generation. Use of differential analyzers for solving linear integral-differential equations, simultaneous linear algebraic equations, and non-linear differential equations.

Prerequisite: ELE 313, MTH 342. (Open for enrollment of undergraduate students.)

ELE 504 Digital Computers**3 credit hours**

Digital computers and their design. Circuit components and binary numbers. Boolean algebra. The simplification of Boolean functions. Memory element input equations. The derivation of application equations. Digital computer memories. Input-output equipment. The arithmetic unit. Error-free computer operation. The control unit. Completing computer design.

Prerequisite: ELE 313. (Open for enrollment of undergraduate students.)

ELE 511 Advanced Theory and Design of Rotating Machinery I**3 credit hours**

Basic principles and applied theory in practical design of induction machinery, commercial, aircraft and missile types.

Prerequisite: ELE 403. (Open for enrollment of undergraduate students.)

ELE 512 Advanced Theory and Design of Rotating Machinery II**3 credit hours**

Detailed theory and design of direct current and synchronous machines. Permanent magnet and flux switch machines. Heat transfer phenomena; the general temperature field.

Prerequisite: ELE 511. (Open for enrollment of undergraduate students.)

ENGINEERING (EGR)**EGR 501 Applied Elasticity****3 credit hours**

Equations of equilibrium and continuity. Solution of two-dimensional problems in rectangular and curvilinear coordinates by means of stress functions. St. Venant's principle, energy methods, stress concentrations, introduction to three-dimensional and thermal stress problems, application of finite difference equations.

Prerequisite: EGM 304.

EGR 502 Mechanics of Fluids 3 credit hours

Fluid properties, important differential equations in fluid flow, laminar and turbulent flow, boundary layer flow, introduction to compressible flow.

EGR 503 Thermodynamics 3 credit hours

Thermodynamic concepts; the laws of thermodynamics; kinetic theory of gases; introduction to the Maxwell-Boltzmann statistics and their applications.

EGR 504 Mass and Energy Transport 3 credit hours

Basic concepts, principles and definitions, rate equations, thermodynamic principles, applications.

EGR 505 Properties of Materials 3 credit hours

Structure, properties, and behavior of materials. Conductivity, diffusivity, electro-chemistry, elasticity, plasticity, fracture, viscosity.

EGR 506 Solid State Devices 3 credit hours

Introduction to the theory of solid state devices. Electron emission devices, semi-conductor devices, dielectric devices, and magnetic devices. Mathematical technique beyond differential equations will be developed as needed.

EGR 512 Reliability 3 credit hours

Application of statistical theory to the design of reliability systems in the broadest sense. Theory behind, and techniques to be used in designing testing methods and procedures for determining reliability of component parts and total systems. Environmental test design. Statistical analysis of, and inference from test results.

Prerequisite: MTH 331.

EGR 513 Systems Analysis, Design & Evaluation 3 credit hours

A total systems approach to problem solving. This course considers techniques which treat quite sophisticated and difficult problems. Proofs and the characteristic rigor of mathematics are avoided but the essential subtlety of the techniques remain. This course relates mathematical courses on the one hand and applied engineering courses on the other.

Prerequisite: EGR 512.

EGR 516 Modern Electron Devices 3 credit hours

Attention is directed toward late developments in electronic devices exclusive of transistors and conventional electron tubes. Some specific topics include low noise traveling wave tubes, parametric amplifying devices, and several devices from the area of quantum electronics. Stress is placed on basic physical principles and theory of operation.

Prerequisites: MTH 421, MTH 422, PHY 505 or equivalent.

EGR 517 Transport Properties 3 credit hours

Momentum, energy and mass transport including viscosity and mechanism of momentum transport, thermal conductivity and mechanism of energy transport, diffusivity and the mechanisms of mass transport.

Prerequisites: MTH 421, MTH 422, EGR 504.

EGR 518 Compressible Flow 3 credit hours

One-dimensional compressible flow, two- and three-dimensional subsonic flow, two-dimensional supersonic flow, mixed flow, and flow of real gases with viscosity and heat conductivity.

Prerequisites: MTH 421, MTH 422, EGR 502.

EGR 519 Analytic Dynamics 3 credit hours

Kinematics, relative motion, constraints and generalized coordinates, Hamil-

ton's principle, Lagrange's equations, variational principles. Applications to particle dynamics and rigid body motion.

Prerequisites: EGM 301, MTH 301.

EGR 520 Advanced Structural Analysis **3 credit hours**

Methods of moment-areas, slope-deflection, moment distribution, column analogy, and virtual work. Includes consideration of such problems as frames of variable cross section, plates and shells, and space frames.

Prerequisites: CIE 407, EGM 304.

EGR 521 Theoretical Soil Mechanics **3 credit hours**

General principles involved in the theories of soil mechanics. Discussion includes stress conditions for failure, active and passive pressure, plastic equilibrium in a semi-infinite mass, bearing capacity, semi-infinite elastic solids and subgrade reaction.

Prerequisite: CIE 409.

EGR 522 Philosophical Foundations of Engineering **3 credit hours**

The place of engineering and the engineer in present day society. The philosophical bases for engineering enterprise and the meaning of engineering achievement. (May be replaced by PHL 505.)

EGR 599 Graduate Engineering Thesis **0 to 6 credit hours**

Students engaged in thesis research must enroll for this course for a total of six credit hours.

ENGINEERING MECHANICS (EGM)

EGM 501 Experimental Stress Analysis **2 credit hours**

A study of the experimental analysis of stress as an aid to design for strength and economy with emphasis on electrical strain gages. Also covered are photoelasticity, brittle coatings, photoelastic coatings, analogies, structural similitude.

Prerequisite: EGM 304, *Corequisite:* EGM 501L.

EGM 501L Experimental Stress Analysis Laboratory **1 credit hour**

Experiments and problems to acquaint the student with the basic techniques of the use of strain gages, photoelasticity, and brittle coatings in stress analysis. *Corequisite:* EGM 501.

ENGLISH (ENG)

Chairman: Dr. Bernard J. Bedard

Prerequisite for enrolling in any of the following courses for graduate credit toward the M.S. in Education degree is teacher certification in English with at least 24 sem. hrs.

ENG 403	History of the English Language	3 credit hours
ENG 405	Chaucer	3 credit hours
ENG 412	Early Renaissance Literature	3 credit hours
ENG 413	Later Renaissance Literature	3 credit hours
ENG 420	Renaissance Drama	3 credit hours
ENG 423	Tragedies of Shakespeare	3 credit hours
ENG 424	Comedies of Shakespeare	3 credit hours
ENG 425	Histories of Shakespeare	3 credit hours
ENG 428	Literary Criticism	3 credit hours
ENG 431	Milton	3 credit hours
ENG 434	Age of Wit and Satire	3 credit hours

ENG 435	Eng. Literature of the 18th Century	3 credit hours
ENG 437	The English Novel	3 credit hours
ENG 438	The Age of Romanticism	3 credit hours
ENG 441-442	The Victorian Age	3 credit hours
ENG 445	Modern British Fiction	3 credit hours
ENG 446	Modern British Poetry	3 credit hours
ENG 450	19th Century American Poetry & Prose	3 credit hours
ENG 452	American Fiction of the 19th Century	3 credit hours
ENG 454	Modern American Fiction	3 credit hours
ENG 456	Modern American Poetry	3 credit hours
ENG 490	Seminar	3 credit hours
ENG 501	English Prose Style	3 credit hours

A study of representative selections of English prose. It includes an investigation of the complementary arts of composition and rhetoric as seen in the writings of the master authors of English prose.

ENG 510	Special Problems in Literary Criticism	3 credit hours
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A study of the possible critical approaches to works of non-dramatic poetry suitable for study on the secondary school level. Specific works to be discussed will be determined by the needs of the class.

ENG 520	Shakespeare I	3 credit hours
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A study of the tragedies of Shakespeare. All the tragedies are read; some are taken through in detail in the lecture periods and the rest are assigned for out of class reading. Class discussion is encouraged, and students are tested on the assigned readings.

ENG 521	Shakespeare II	3 credit hours
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A study of the comedies and most important history plays of Shakespeare. The same procedure is followed as in ENG 520.

HISTORY (HST)

Chairman: Dr. Wilfred J. Steiner

Any 300-400 upper level undergraduate course in History may yield graduate credit under the usual conditions.

HST 500	Historiography	3 credit hours
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The course will concentrate on a study of the principal historians and the chief contributions to the development of historical writing as a historical science, with its own method and objectives. Some familiarity with traditional historical methods will be required in the composition of research papers.

HST 501	Greek and Roman Civilization	3 credit hours
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This course seeks to understand life in Ancient Greece and Rome. The method of inquiry is comparison and contrast: first between Athens and Sparta, the focal points of the Hellenic era, and then between the republican and imperial periods of Rome. In each case, Hellenic and Rome, the course probes economic, social, religious, and cultural forces. A general knowledge of Ancient History is presupposed.

HST 505	Great African States	3 credit hours
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An intensive study of highly developed civilizations of medieval and early modern Africa. Stress will be placed on the empires of Ghana, Mali, Songhay, Ethiopia and Zanj.

HST 506 Medieval Civilization**3 credit hours**

An interpretation of the culture of the Middle Ages, including Christian thought from St. Augustine to St. Thomas Aquinas, humanism and the classical revival, the rise of vernacular literature, the fine arts, education, and scientific development. A general knowledge of medieval history is *presupposed*.

HST 521 Tudor-Stuart England**3 credit hours**

A study of England—1485 to 1714. For the Tudor period, chief emphasis will be given to the development of the national state, royal absolutism, and the Reformation. The evolution of the constitutional question will be the main theme in the treatment of the Stuart era and Cromwellian Interregnum. The social, economic and cultural aspects of the period, as well as its diplomacy, will be fully covered.

HST 522 Victorian England**3 credit hours**

The study of Great Britain from the Congress of Vienna in 1815 to the end of World War I. The course examines domestic politics, imperial affairs, the Oxford and Evangelical Movements, the Industrial Revolution, the development of Socialism, and major intellectual and cultural currents.

HST 528 Soviet Union since 1917**3 credit hours**

A comprehensive analysis of Soviet Russia from the Revolution of 1917 to the present day. Concentration will be on the political, economic (including the impact of science and technology), and social aspects of the Soviet nation. Treatment will also be given to the full range of Soviet foreign relations and ideology.

HST 531 The Civilization of the Far East**3 credit hours**

The purpose of this course is to acquaint the High School history teacher with the cultural, religious, social, and economic development of the Far East. The importance of this area in recent world events has given the Far East much greater significance in World History courses. A general knowledge of World History is *presupposed*.

HST 540 Interpretations in World History**3 credit hours**

Specific topics will be chosen for investigation and interpretation as determined by the Instructor. The course will be designed to assist teachers of World History in following recent trends in the interpretation of historical events. A general knowledge of World History is a *prerequisite*.

HST 545 Seminar in Non-American History**3 credit hours**

Discussions; oral and written reports. The topics will depend, in part, upon the interest of the members of the class.

HST 550 The Philosophy of History**3 credit hours**

The course in the Philosophy of History will be concerned primarily with the speculative historical writing—i.e., the study of the principal philosophers of history beginning with Greek antiquity and including St. Augustine, Hegel, Marx, Spengler, and Toynbee.

HST 552 The American Revolution**3 credit hours**

The course will treat the following topics: the problems of empire-relationships since 1754; the causes, conduct, and consequences of the American Revolution; the postwar problems leading to the adoption of the Federal Constitution.

HST 555 The Immigrant in America**3 credit hours**

A study of the various immigrant groups that combined to establish the distinctive features of American civilization. Attention will be focused on the contributions of the nationality groups in the development of our social, eco-

conomic, political, cultural, and religious institutions. A general knowledge of American History is *presupposed*.

HST 570 The Old South **3 credit hours**

A study of political, social, economic, and cultural history, emphasizing presiding themes of pre-Civil War Southern life—ruralism, cotton culture, extractive economics, slavery, developing political minority status in the nation. A general knowledge of American History is a *prerequisite*.

HST 580 History of the Labor Movement in the U.S. **3 credit hours**

After a brief survey of classic instances of early labor organization from the 1790's through the 1850's, a major attention is given to the conditions of labor in the post-Civil War United States and the movement toward national organization of labor. Thereafter, discussion turns to the economic, political, social, and intellectual emphases and programs of national labor organizations in the environment of late 19th century and 20th century United States.

HST 585 Science and Technology in American History **3 credit hours**

A descriptive and interpretative study of the role of American scientists, inventors, and technologists in American history from the colonial era to the present time, with particular emphasis upon the Machine Age. A general knowledge of American History is a *prerequisite*.

HST 590 Interpretations in American History **3 credit hours**

Specific topics will be chosen for investigation and interpretation as determined by the Instructor. The objective of the course is to assist High School teachers of American History in keeping abreast of the most recent literature in the field and to study new interpretations of historical events. A general knowledge of American History is a *prerequisite*.

HST 595 Seminar in American History **3 credit hours**

Students will examine selected topics in American History. Emphasis will be on discussion based on individual reading and interpretative essays.

HST 599 Thesis **3-6 credit hours**

MATHEMATICS (MTH)

Chairman: Dr. Kenneth C. Schraut

MTH 411 Probability and Statistics I **3 credit hours**

Prerequisite: MTH 202 or 218

MTH 412 Probability and Statistics II **3 credit hours**

Prerequisite: MTH 411

MTH 413 Probability and Statistics **3 credit hours**

Prerequisite: MTH 412

MTH 421 Advanced Calculus I **3 credit hours**

Prerequisite: MTH 202 or 218

MTH 422 Advanced Calculus II **3 credit hours**

Prerequisite: MTH 421

MTH 432 Fourier Series and Boundary Value Problems **3 credit hours**

Prerequisite: MTH 422

MTH 461 Introduction to the Theory of Functions of a Complete Variable **3 credit hours**

Prerequisite: MTH 422

MTH 465 Modern Operational Mathematics **3 credit hours**

Prerequisite: MTH 202 or 218

MTH 471 Topology **3 credit hours**

Prerequisite: MTH 422

The courses marked with an asterisk are intended primarily for graduate students in Education. Prerequisite for enrolling in any of these courses for graduate credit toward the M.S. in Education degree is standard teacher certification in Mathematics with at least 21 sem. hrs. in Mathematics.

***MTH 501-502 Fundamental Concepts of Algebra**

6 credit hours

An introduction to the basic concepts of abstract algebra such as number postulates, groups, rings, fields, mappings, classes, and sets, as well as certain concepts taken from the classical theory of equations. An intensive study of the relation of these topics to the topics of high school algebra as proposed by the several curriculum revision groups.

***MTH 503-504 Fundamental Concepts of Geometry**

6 credit hours

A study of the axioms and concepts upon which various geometries are built. A comparison is made between Euclidian metric and projective geometries and to a lesser extent consideration is given to non-Euclidian geometries. A comparison is also made between synthetic and analytic methods of proof with some consideration given to vector notations. An intensive study of the relation of these topics to the topics of high school geometry as proposed by the several curriculum revision groups.

***MTH 505-506 Fundamental Concepts of
Probability and Statistics**

6 credit hours

Topics to be discussed include: the basic laws of probability, frequency distribution (Binomial, Poisson, Normal, etc.) sampling estimation of parameters, sampling distributions, confidence intervals, tests of hypotheses, regression, and analysis of variance. An intensive study of the relation of these topics to the topics of high school probability and statistics as proposed by the several curriculum revision groups.

***MTH 507 Fundamental Concepts of Analysis**

3 credit hours

This course will include the concepts of number, sequence, function, limit, continuity, derivative, integral, and infinite series, as well as their relation to the material in the high school curriculum.

***MTH 508 Introduction to Applied Analysis**

3 credit hours

A survey of the application of differential equations and infinite series to classical problems in physics, science, and engineering.

***MTH 510 Theory and Practice of Computer Programming**

3 credit hours

A study of the universal compilers *agol* and *cobol*, followed by a survey of the computer solution of selected problems taken from science, technology, and business. Attention will be given to the analysis of errors.

MTH 521-522 Real Variables I

3 credit hours each semester

Sets and relations, cardinal numbers, order types and ordinals, the real number system and metric spaces, functions and sequences of functions.

Prerequisite: MTH 422.

MTH 525-526 Differential Equations

3 credit hours each semester

Existence theorems and numerical methods. Linear equations and systems. Singularities. Asymptotic behavior and stability. Self adjoint differential systems and boundary value problems.

MTH 535 Partial Differential Equations I

3 credit hours

Classification of partial differential equations, reduction to cononical form. Existence theorems and the generalized Cauchy problem. Methods of Solution, orthogonal functions, Green's Theorem, and operational methods.

Prerequisites: MTH 421, 461, and preferably MTH 465.

MTH 536 Partial Differential Equations II**3 credit hours**

The wave equation, Laplace's equation, some problems in the conduction of heat, motion of viscous fluids, the hodograph method. Numerical solutions and existence theorems related to these methods.

Prerequisite: MTH 535.

MTH 541-542 Operational Methods**3 credit hours each semester**

The operational methods frequently used in applied mathematics are studied including the Laplace and other Fourier transformations. The concept of involution is used to develop the theory. The inversion integral and applications to ordinary and partial differential equations are discussed.

Prerequisite: MTH 422, 461, and preferably 432 and 465.

MTH 545 Special Functions**3 credit hours**

The special functions frequently encountered in engineering and the physical sciences are studied. The hypergeometric function and generating functions are used throughout to develop the theory. The theory of infinite products and asymptotic expansions are also discussed.

Prerequisites: MTH 422 and 461.

MTH 551-552 Methods of**Mathematical Physics****3 credit hours each semester**

Linear transformations and matrix theory. The series expansion of functions. Linear integral equations. The calculus of variations. Linear and non-linear oscillators, eigenvalue problems. Partial differential equations and potential theory. Functional transformations. Special functions.

Prerequisite: Consent of Instructor.

MTH 555-556 Advanced Numerical Analysis**3 credit hours each semester**

Harmonic analysis, data analysis, interpolation by orthogonal functions. Quadrature methods. Matrices and large scale linear systems. Concepts of convergent matrices, spectral radii, and spectral norms of matrices. Classical and modern iterative methods, including the successive overrelaxation method. Numerical solution of partial differential equations. Concepts of stability and convergence of numerical methods. Error analysis. Consideration will be given to programming the methods studied for a high speed digital computer.

Prerequisite: Consent of Instructor.

MTH 561 Abstract Algebra**3 credit hours**

Semi-groups and groups, groups with operators, integral domains and fields, extensions of rings and fields, elementary factorization theory, modules and ideals.

Prerequisite: MTH 361 or equivalent.

MTH 565-566 Linear Algebra and Matrices**3 credit hours each semester**

Vector spaces, linear transformations and matrices, determinants, equivalence relations, canonical forms, functions of vectors. Orthogonal and Unitary equivalence, structure of polynomial rings, equivalence of matrices over a ring similarity of matrices, linear inequalities.

Prerequisite: MTH 361 or equivalent.

MTH 571-572 Linear Topological Spaces**3 credit hours each semester**

The study of various topologies within linear spaces, with emphasis on Branch and Hilbert Spaces. Review of Lebesgue integration. Orthogonal expansions. Projections. Linear transformations. Banach algebras and spectral theory.

MTH 575 Differential Geometry**3 credit hours**

Vector and tensor algebra. Covariant differentiation. An introduction to the classical theory of curves and surfaces treated by means of vector and tensor analysis.

MTH 599 Philosophical Foundations of Mathematics 3 credit hours

The philosophical character of mathematical concepts. Nature, foundation and method of mathematics. The historical inter-relation of Philosophy and Mathematics from the Greeks to the present day.

May be replaced by PHL 505 Inter-Disciplinary Seminar.

PHILOSOPHY (PHL)

Chairman: Rev. Edmund L. Rhodes, S.M., S.T.L.

The courses below marked with an asterisk are intended primarily for graduate students in Education. Prerequisites for enrolling in any of these courses for credit in the M.S. in Education degree is the completion of the 12 sem. hrs. of basic undergraduate sequence in Philosophy courses.

These courses are also open to graduate students for the M.A. degree in Philosophy under conditions stated in this Bulletin concerning the use of advanced undergraduate courses open to graduate students.

PHL 408 History of Modern Philosophy 3 credit hours**PHL 410 History of Political Philosophy 3 credit hours*****PHL 430 Philosophy of Plato 3 credit hours*****PHL 432 Philosophy of Aristotle 3 credit hours*****PHL 434 St. Thomas Aquinas 3 credit hours*****PHL 450 Problems in Philosophy 3 credit hours****PHL 504 Philosophy of Art 3 credit hours**

An analysis of the nature of art, beauty, and the aesthetic judgment in the light of the philosophical principles and distinctive conditions found in each: a discussion of the permanent and inward relationship of the values of truth, goodness and beauty.

PHL 505 Inter-Disciplinary Seminar 3 credit hours

Special emphasis to be given to the current interrelations of science, philosophy, the humanities, religion, education and government.

PHL 515 Methods of Research in Philosophy Seminar 3 credit hours

The seminar aims to acquaint students with the methods, materials and tools special to and necessary for philosophical research.

PHL 525 Thomistic Texts and Commentaries 3 credit hours

This course features carefully selected philosophical readings from the writings of Aquinas to be submitted to a critical analysis through the aid of commentaries, including a correlation to the primary Grecian, Neoplatonic, Patristic and Arabic historical sources. A reading knowledge of Latin is desirable.

PHL 540 Aristotle's De Anima and St. Thomas' Commentary 3 credit hours

A comparative study relative to problems touching on the philosophy of man, as well as some problematics of human knowledge; but principally contrasting the animistic hylomorphism of Aristotle with the synolistic hylomorphism of Aquinas.

PHL 545 Modern French Philosophy 3 credit hours

An examination of the leading philosophical movements in France with particular emphasis on the rationalism of Descartes, the spiritualistic realism of Bergson, the positivism of Comte, and the existentialism of contemporary philosophers.

PHL 555 Modern German Philosophy**3 credit hours**

A tracing of post-Kantian influences in modern Germanic philosophy through the idealistic developments of Fichte, Schelling and Hegel; stressing their "rationalistic" theological thought, their return to metaphysics and their varying intellectual intuitions.

PHL 560 Modern British Philosophy**3 credit hours**

A survey of the 17th and 18th century reactionary and transitional empiricists from Bacon and Hobbes through Locke, Berkeley and Hume. Points of stress include: (1) their psychologico-epistemological approach to experience and fact; (2) their relation to positivism; (3) a critique of ideas, the value of knowledge, the notion of substance, causality and realism.

PHL 565 The History and Literature of American Philosophy**3 credit hours**

A survey of the major trends and issues of American thought from the 18th century to the present, especially as reflected in the writings of Edwards, Jefferson, Emerson; Royce, Peirce, James, Dewey, and Santayana. The development of democratic traditions; transcendentalism; the significance of recent European importation.

PHL 570 Existentialist Philosophy**3 credit hours**

A penetrating study of the existentialist movement, its nature and causes, along with a survey of the position of some of the outstanding existentialists, such as Kierkegaard, Sartre, Jaspers, Heidegger, and Marcel.

PHYSICS (PHY)**Chairman: Dr. Joseph Kepes**

Prerequisite for enrolling in any of these courses for graduate credit toward the M.S. in Education degree is the completion of undergraduate requirements for standard teacher certification in Physics or in Physical Science plus the completion of one year of college mathematics.

PHY 351 Introduction to Astronomy**3 credit hours**

Prerequisites: MTH 202 Differential and Integral Calculus II, and PHY 206, 207, 208 General Physics.

PHY 420 Introduction to Solid State**3 credit hours**

Prerequisite: PHY 311.

PHY 440 X-Rays**3 credit hours**

Prerequisites: MTH 218, PHY 206, 207, 208. *Recommended previous course:* PHY 311.

PHY 450 Advanced Astronomy**3 credit hours**

Prerequisite: PHY 351 Introduction to Astronomy.

PHY 500 Modern Physics I**3 credit hours**

The object of the course is to familiarize high school science teachers with some of the current advances in physics. The great present day interest in atomic and nuclear physics stems both from the basic nature of the problems attacked and from the technical applications, which are world in importance. An understanding of the foundations of the subject, together with some of the chief results and trends, is a necessity for high school teachers of science.

PHY 500L Modern Physics Lab I**2 credit hours**

A laboratory course intended to allow the student to perform experiments discussed in the lecture, to measure fundamental particles, charges, and constants, both modern and classical.

PHY 501 Modern Physics II**3 credit hours**

A continuation of PHY 500. Modern Physics I.

PHY 501L Modern Physics Lab II **2 credit hours**
A continuation of PHY 500L. Modern Physics Lab. I

PHY 505 Modern Physics for Engineers **3 credit hours**
Selected topics in atomic physics, the solid state, and nuclear physics. Elementary quantum mechanics and application to the free-particle and the one-electron atom. X-Rays, elementary particles, cosmic rays will also be studied to some extent.

PSYCHOLOGY (PSY)

Chairman: Dr. Joseph J. Moylan

PSY 307 Psychology of Exceptional Children **3 credit hours**

PSY 312 Abnormal Psychology **3 credit hours**
Prerequisite: PSY 305 Mental Hygiene, or equivalent.

PSY 401 Advanced Statistics **3 credit hours**
Prerequisite: PSY 302 Elementary Statistics, or EDU 503.

PSY 408 Social Psychology **3 credit hours**
Prerequisites: Six hours of Psychology or Educational Psychology.

PSY 420 Industrial Psychology **3 credit hours**
Prerequisites: PSY 302 or EDU 503.

THEOLOGY (THL)

Chairman: Rev. Matthew F. Kohmescher, S.M., S.T.D.

Any of the 400 level undergraduate courses in Theology (except Thl 406, 407, and 408) may count for graduate credit under the usual conditions. Prerequisite for enrolling in any of the following courses for graduate credit toward the M.S. in Education degree is completion of the undergraduate sequence of Theology and Philosophy courses, namely 12 sem. hours in Theology and 12 sem. hours in Philosophy, or the equivalent.

THL 500 Philosophy of Religion **3 credit hours**

A systematic interpretation of the essential bond that unites man to God in a real relation of the creature and the Creator; a Christian philosophic approach to this personal social relationship in the dimension of immanence and transcendence; and exposition of the sacred and eternal in the human and divine society effected by faith and love in the human being made to the image and likeness of God.

THL 501 History of Religion **3 credit hours**

The comparative role of Christianity and non-Christian religions in the molding of world civilization and, in particular, in the Western culture. Among all religions, the unique doctrinal, moral, and liturgical features of Christianity, with special investigation of their processive incarnational character.

THL 505 Theology of the Incarnation **3 credit hours**

An appreciative study of the Incarnation of the Word of God divinely revealed in Sacred Scriptures and Tradition as the pivotal truth of Christianity, together with its doctrinal developments and precisions necessitated by the key Christological controversies of the patristic, medieval, and contemporary eras, as well as its consequent influence on Christian life and practice during these same periods.

THL 520 Role of the Mother of God in the Incarnation **3 credit hours**
The Divine Maternity, principle of Mary's excellence; the spiritual maternity:

the meaning of the doctrine, pronouncements of the Magisterium, the evidence from Scripture, the voice of Tradition, the theological explanation; relation to other privileges, special questions of the 19th and 20th century authors. The Universal Mediation of Mary.

Prerequisite: THL 342.

THL 521 Privileges of the Blessed Virgin

3 credit hours

The Immaculate conception: defined doctrine, proof from Sacred Scripture, argument from Tradition, proof from theological reason, alleged debt of sin in Mary, immunity from concupiscence, consequences, greatness of the privilege; the Assumption: (1) Our Lady's Death, adversaries, proof of the thesis, question of Mary's death after Munificentissimus Deus; (2) The Assumption itself: Catholic dogma, errors, proofs from the Magisterium, Scripture, Tradition, Liturgy, Connection with other truths.

Prerequisite: THL 444.

THL 522 History of Mariology

3 credit hours

An historical treatment of the principal ideas in the Mariological treatise in order to see the development of dogma and theological doctrine from the time of the Fathers of the Church to the present era. Special emphasis will be given to the doctrines of the spiritual maternity and the coredeemption.

THL 540 The Church of Christ

3 credit hours

Institution and Organization of the Church of Christ. Functions and characteristics of the Church. The hierarchy and the Roman Pontiff. The Church as the Mystical Body of Christ.

THL 541 Church and State

3 credit hours

A definition of the problem in terms of institutions; its historical perspectives with emphasis on its contemporary significance. A presentation of the basic elements involved in any solution of the problem.

THL 542 The Catholic Church in America

3 credit hours

An intensive study of the history, structure and regional diversity of the Church in our pluralistic society and a consideration of the widening impact of the Church on the national community in areas vital both to the United States and the supernatural mission of the Mystical Body in our country.

THL 543 Missiology: The Missionary Movement in the Church

3 credit hours

An intensive study of the nature of the Church's mission and its implementation throughout the course of history, with special emphasis on the latest developments, particularly on the increasingly vital role that the laity are to play in the missionary conquests of the Church.

THL 544 Theological Perspectives of the Apostolate

3 credit hours

A dynamic study of Christian social morality in the light of the mission of the Church; the mystery of the Church; the role of Christ the King; apostolic life in Christ; apostolic purifications and temptations; the exigencies of the missionary spirit.

THL 545 Canon Law for the Laity

3 credit hours

A consideration of those points in the official law of the Church which are of great practical importance in the life of the layman.

THL 590 Seminar with monograph

3 credit hours

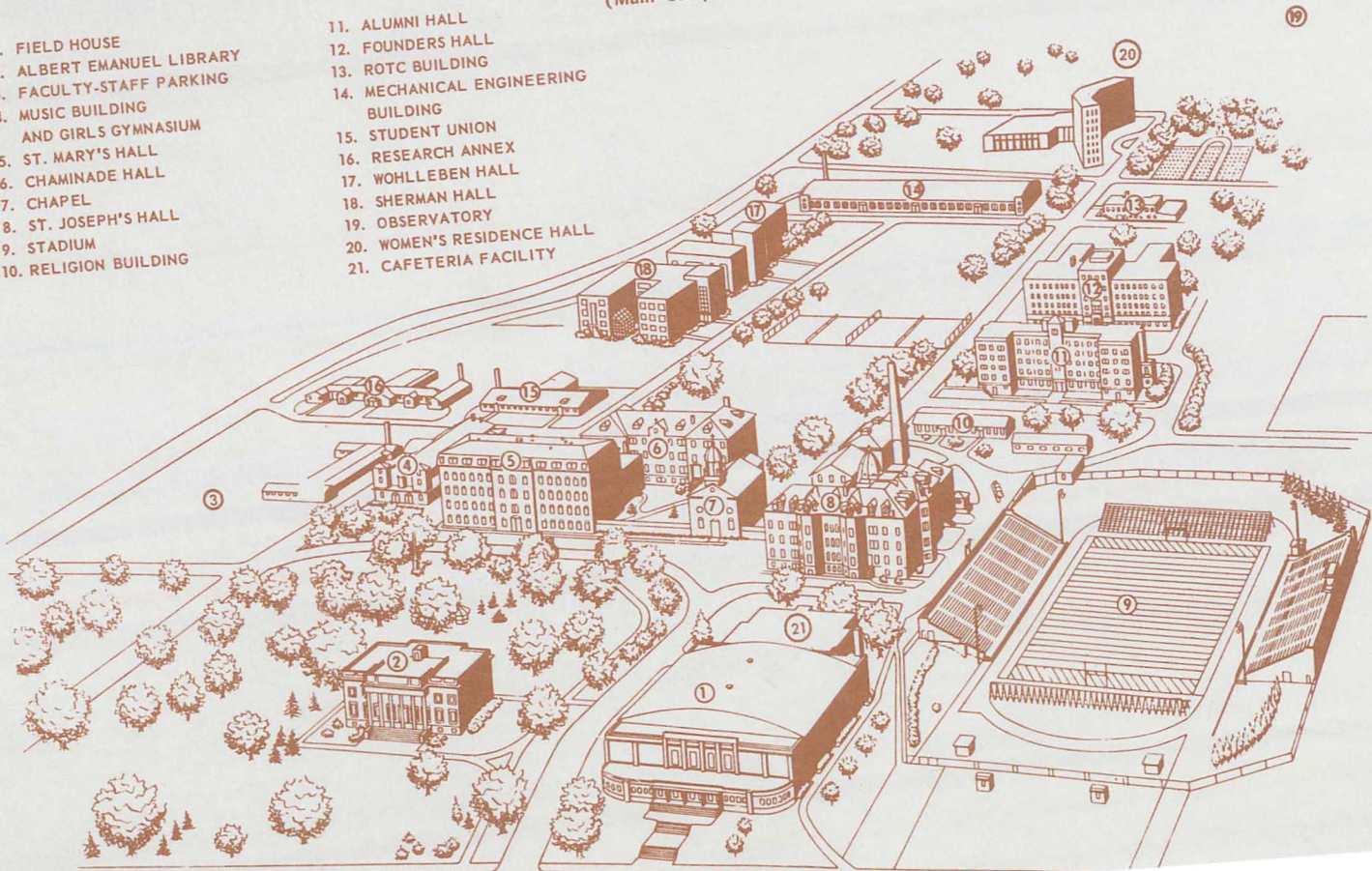
THL 599 Thesis

3 credit hours

The University of Dayton (Main Campus)

1. FIELD HOUSE
2. ALBERT EMANUEL LIBRARY
3. FACULTY-STAFF PARKING
4. MUSIC BUILDING
AND GIRLS GYMNASIUM
5. ST. MARY'S HALL
6. CHAMINADE HALL
7. CHAPEL
8. ST. JOSEPH'S HALL
9. STADIUM
10. RELIGION BUILDING

11. ALUMNI HALL
12. FOUNDERS HALL
13. ROTC BUILDING
14. MECHANICAL ENGINEERING
BUILDING
15. STUDENT UNION
16. RESEARCH ANNEX
17. WOHLLEBEN HALL
18. SHERMAN HALL
19. OBSERVATORY
20. WOMEN'S RESIDENCE HALL
21. CAFETERIA FACILITY



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