

Department of STEM Education & Professional Studies

Web Site: <http://www.odu.edu/stemps> (<http://www.odu.edu/stemps/>)

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The Department of Science, Technology, Engineering and Mathematics (STEM) Education and Professional Studies (STEMPS) is an academic leader in graduate studies related to education specialists, including, instructional design and technology, marketing education, career and technical education, library science, and business and industry training. It offers the M.S., M.S.Ed, and the Ph.D. in Education with programs in occupational and technical studies (OTS) and instructional design and technology (IDT). The department also offers licensure and teaching endorsement programs. Due to changing University requirements, national accreditation standards, and Commonwealth licensure regulations, the programs in the Darden College of Education and Professional Studies are under constant revision. Any changes resulting from these factors supersede the program requirements described in the catalog. Students should obtain current program information from their advisors and the Darden College of Education and Professional Studies website at <http://education.odu.edu/>.

Instructional Design and Technology Programs

- Master of Science in Education - Elementary Education – Instructional Design and Technology
- Master of Science in Education - Secondary Education – Instructional Design and Technology
- Doctor of Philosophy, Education - Instructional Design and Technology Concentration
- Graduate Certificate in Education and Training in Modeling and Simulation
- Graduate Certificate in Human Performance Technology

Occupational and Technical Studies Programs

- Master of Science - Occupational and Technical Studies, with emphasis area in Business and Industry Training
- Education Specialist - Educational Leadership - Occupational & Technical Studies Concentration
- Doctor of Philosophy - Education - Occupational and Technical Studies Concentration*

Post Baccalaureate Teacher Licensure Programs

- Technology Education*
- Marketing Education*
- Endorsement Program in Industrial Cooperative Training

Library and Information Studies Programs

- Master of Science in Library and Information Studies
- Master of Science in Library and Information Studies with Concentration in School Librarianship
- Graduate Certificate in School Library Practice (for those with an MLIS)

***Please note the programs below are now managed by the Darden College of Education & Professional Studies - Department of Educational Foundations & Leadership (Program content will not be moved for the 2023-2024 catalog.)**

- Doctor of Philosophy, Education with a Concentration in Occupational & Technical Studies

- Post-Baccalaureate Endorsement Program in Technology Education
- Post-Baccalaureate Endorsement Program in Marketing Education

Programs

Doctor of Philosophy Programs

- Education with a Concentration in Instructional Design and Technology (PhD) (<http://catalog.odu.edu/graduate/education/stem-education-professional-studies/education-instructional-design-technology-phd/>)
- Education with a Concentration in Workforce and Organizational Development (PhD) (<http://catalog.odu.edu/graduate/education/stem-education-professional-studies/education-workforce-org-dev-phd/>)

Education Specialist Program

- Educational Leadership with a Concentration in Occupational and Technical Studies (EdS) (<http://catalog.odu.edu/graduate/education/stem-education-professional-studies/educational-leadership-occupational-technical-studies-eds/>)

Master of Library and Information Studies Programs

- Library and Information Studies (MLIS) (<http://catalog.odu.edu/graduate/education/stem-education-professional-studies/library-information-studies-mlis/>)
- Library and Information Studies with a Concentration in School Librarianship (MLIS) (<http://catalog.odu.edu/graduate/education/stem-education-professional-studies/library-information-studies-school-librarianship-mlis/>)

Master of Science Program

- Occupational and Technical Studies (MS) (<http://catalog.odu.edu/graduate/education/stem-education-professional-studies/occupational-technical-studies-ms/>)

Master of Science in Education Programs

- Elementary Education with a Concentration in Instructional Design and Technology (MSEd) (<http://catalog.odu.edu/graduate/education/stem-education-professional-studies/elementary-education-instructional-design-technology-msed/>)
- Secondary Education with a Concentration in Instructional Design and Technology (MSEd) (<http://catalog.odu.edu/graduate/education/stem-education-professional-studies/secondary-education-instructional-design-technology-msed/>)

Post-Baccalaureate Endorsement Programs

- Industrial Cooperative Training Post-Baccalaureate Endorsement (<http://catalog.odu.edu/graduate/education/stem-education-professional-studies/industrial-cooperative-training-endorsement/>)
- Marketing Education Post-Baccalaureate Endorsement (<http://catalog.odu.edu/graduate/education/stem-education-professional-studies/marketing-education-post-baccalaureate-endorsement/>)
- Teacher Education Post-Baccalaureate Endorsement (<http://catalog.odu.edu/graduate/education/stem-education-professional-studies/teacher-education-post-baccalaureate-endorsement/>)
- Technology Education Post-Baccalaureate Endorsement (<http://catalog.odu.edu/graduate/education/stem-education-professional-studies/technology-education-post-baccalaureate-endorsement/>)

Certificate Programs

- Human Performance Technology Certificate (<http://catalog.odu.edu/graduate/education/stem-education-professional-studies/human-performance-technology-certificate/>)
- Online Teaching for K-12 Teachers Certificate (<http://catalog.odu.edu/graduate/education/stem-education-professional-studies/online-teaching-k-12-teachers-certificate/>)

- School Library Practice Certificate (<http://catalog.odu.edu/graduate/education/stem-education-professional-studies/school-library-practice-certificate/>)

Courses

Instructional Design and Technology (IDT)

IDT 617 Foundations of Instructional Technology (3 Credit Hours)

Required introductory overview to the field of instructional technology. Topics include a history of the field, basic instructional design, generally accepted theoretical practices and major formats of instructional media. Emphasis is given to instructional technology trends as applied to various industries, including K-12, military, industry training, and others.

IDT 630 Foundations of Human Performance Technology (3 Credit Hours)

This course will introduce students to the field of Human Performance Technology (HPT). Students will explore what HPT is, why instructional designers should know about it, how performance improvements can be measured, and most critically, how it can be applied in real environments to solve real problems. Students will gain practice in thinking systematically about performance, and they will enhance their value as instructional design professionals by being able to offer solutions to organizational needs that go beyond traditional instruction.

IDT 647 Online Learning (3 Credit Hours)

This course is an applied survey on online instruction, including relevant online learning theory and design considerations, as well as tools and principles, with an emphasis on K-12 education. Topics include theories and principles of online learning, effectively identifying, locating, evaluating, preparing, and using educational technology as instructional resources in an online environment.

IDT 725 Human Performance Assessment (3 Credit Hours)

This course focuses on the theory, design, and evaluation of measurement instruments used to assess individual knowledge, performance, and attitudes. Topics include fundamentals of measurement, reliability, validity, and instrument selection, construction, and use. Students will develop and evaluate instruments for instructional and research purposes.

Prerequisites: FOUN 722 or equivalent

IDT 730 Principles and Practices of Human Performance Technology (3 Credit Hours)

This course explores both the principles and practices of human performance technology, with roughly equal emphasis on both. Students will learn what HPT is, how it's applied in practice, and how and why instructional designers need to know about it. Particular emphasis is given to determining whether or not problems are best amenable to instructional solutions.

IDT 735 Noninstructional Interventions (3 Credit Hours)

This project-based course examines several different non-instructional interventions that can be used to promote performance improvement. Major methodologies common in the field will be explored as a class, and students will also be required to familiarize themselves with other methodologies of their choice. Emphasis will be on the following interventions: job analysis/work design, performance development, human resource development, organizational communication, organizational design and financial systems.

IDT 737 Consulting Skills for Instructional Designers (3 Credit Hours)

This project-based course is designed to develop and enhance the ability of instructional designers to work as partners and consultants to clients and superiors. The focus is on consulting skills per se, and not any particular content. All students will be required to do an individual consulting project, supervised by the instructor.

IDT 739 Needs Analysis and Assessment (3 Credit Hours)

This project-based class will focus on the process of doing a needs analysis and assessment, from start to finish. Although theoretical considerations regarding needs analyses will be explored, the emphasis is on actually conducting the analysis. Students will work in teams under the supervision of the instructor to conduct a needs analysis for an external client.

IDT 746 Foundations of Distance Education (3 Credit Hours)

An analysis of the trends, issues, and theories of distance education in education, business, and military applications. Students will examine various distance education systems, policies and lessons from different perspectives.

IDT 749 Instructional Systems Design (3 Credit Hours)

Students will gain hands-on experience applying a theoretical understanding of instructional design and development to actual projects. Students will learn and use the Instructional Systems Design Process from initial learner profile analysis to design and development through to evaluation. Students will work individually and in teams to gain experience similar to real-world instructional design situations. Students will master the fundamental practices upon which the instructional design process is based.

IDT 751 Computer-Based Multi-Media Design (3 Credit Hours)

This course covers the theory, design, and evaluation of computer-based multimedia instruction. Students will demonstrate a thorough understanding of instructional theory and design strategies for computer-based drills, tutorials, hypermedia, simulations, games, tools, open-ended learning environments, tests, and web-based instruction. Class projects will center on the design and development of instruction utilizing at least two of these methodologies.

Prerequisites: IDT 749 and IDT 849

IDT 752 Diffusion and Adoption of Instructional Technology Innovations (3 Credit Hours)

This course will explore theories, research, and strategies related to the diffusion and adoption of instructional technology innovations in education and training. The course will explore why and how individuals, groups, and organizations adopt or fail to adopt an innovation or change.

IDT 755 Theory and Design of Instructional Simulation (3 Credit Hours)

This course focuses on learning theory, design and evaluation of instructional simulations and simulators. Topics include history, instructional design, validation, and integration of instructional simulations.

IDT 756 Instructional Gaming: Theories and Practice (3 Credit Hours)

Provides both a conceptual framework and experience in the design and development of instructional games. The course introduces the student to the history, research, theory, and practice of instructional games. Topics include discussions of relevant learning theories associated with instructional gaming, analysis and design of games and current research in instructional gaming.

IDT 760 Cognition and Instructional Design (3 Credit Hours)

Students will be introduced to the theoretical frameworks that form the basis of instructional systems theory and design. Focus will be on learning theories, instructional psychology, and instructional system theory. Recent developments in cognition, learning and instruction for educators will also be considered. Topics include perspectives of behaviorism, social-historical constructivism, cognitive science, situated cognition, and cultural influences on cognition.

IDT 761 Applied Instructional Design Tools (3 Credit Hours)

Problem-based course in which students gain experience applying knowledge from IDT 749/IDT 849 to real-world instructional and instructional technology problems. Project work is individual, paired, and in teams. Students demonstrate mastery of the instructional design and development process through production of tools, technologies, media or materials that successfully resolve an instructional problem. Focus is on rapid prototyping model.

Prerequisites: IDT 749 or IDT 849

IDT 763 Instructional Design Theory (3 Credit Hours)

Students will investigate traditional and contemporary instructional design theories and models. Behavioral, cognitive, generative, problem-based learning, and constructivist theories as well as cognitive hierarchies will be examined, compared, contrasted and applied to various instructional situations.

IDT 764 Instructional Message Design (3 Credit Hours)

This course is a study of the application of perceptual and learning principles to the design of instructional media for use in educational and training applications. The focus is on the development and application of heuristics from the research literature. We will examine verbal and iconic signs as well as visual imagery, and their role in the instructional and learning processes.

IDT 773 Advanced Instructional Design Techniques (3 Credit Hours)

Exploration and application of techniques, tools and competencies characteristic of expert designers. Topics may include: instructional strategies, use of design software, program design, advanced analysis techniques, motivation design, rapid prototyping, reducing design cycle time, and designing instruction for diverse learner populations.

Prerequisites: IDT 749/IDT 849

IDT 775 Designing Online Instruction (3 Credit Hours)

An applied survey of online instruction, including relevant theory and design considerations. Topics include efficacy of online learning, design considerations when using course management systems and similar online learning technologies, research and future directions.

IDT 795 Topics in Instructional Design and Technology (1-3 Credit Hours)

Provides opportunities for master's and doctoral students to explore topics related to instructional design.

IDT 801 Instructional Design and Technology Seminar (3 Credit Hours)

Introduces new Ph.D. students to the field of instructional design and technology and provides orientation to doctoral level study. The course includes reading, critiquing and analyzing empirical research, theories, and real-world instructional problems. Potential student research agendas consistent with faculty or programmatic research foci will be explored. Academic and technological expectations will be communicated and practiced.

IDT 810 Trends and Issues in Instructional Design and Technology (3 Credit Hours)

Exploration and discussion of trends and issues of current and historical significance to instructional design. Readings will include contributions of key scholars, past and present, in instructional design and related fields. Includes analysis of trends and issues to track and predict their impact on the future of the field.

Prerequisites: 9 hours IDT coursework

IDT 825 Human Performance Assessment (3 Credit Hours)

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An applied survey of online instruction, including relevant theory and design considerations. Topics include efficacy of online learning, design considerations when using course management systems and similar online learning technologies, research and future directions.

IDT 879 Research Residency in Instructional Design and Technology (3 Credit Hours)

An introduction to conducting instructional technology research. Students will work in consultation with their advisor to develop a proposal for a study related to instructional technology as part of their research residency that will be submitted for presentation at a nationally refereed conference or to a refereed journal.

IDT 895 Topics in Instructional Design and Technology (3 Credit Hours)

Provides opportunities for master's and doctoral students to explore topics related to instructional design.

IDT 898 Research Residency II (1-3 Credit Hours)

A mentored research project by the student's advisor. Students work independently with their advisor to complete the research residency project. This course focuses on obtaining appropriate human subjects approval, collecting and analyzing data, and preparing a manuscript suitable for presentation or publication in nationally refereed journal or conference. Course may be repeated as needed, but only 3 hours may be counted toward degree requirements.

Prerequisites: IDT 879

Library Science (LIBS)**LIBS 601 STEM Education and Maker Spaces in Libraries (3 Credit Hours)**

This course explores storytelling for the purpose of informing, entertaining and/or educating in an information setting. It introduces narrative structure and technique using a variety of different media. Storytelling strategies help students gain communication skills and practice. Students will explore the potential use of storytelling for a variety of age groups, from preschool through adults, and for special audiences.

LIBS 602 Production of Instructional Materials (3 Credit Hours)

Develops skills in preparing, evaluating, and presenting instructional materials and the use of those materials to promote higher-level thinking and enhance the learning environment. Includes elements of design, multimedia materials, and development of in-service activities. Hands-on practice in media production and dissemination.

LIBS 603 Online Resources for Teaching (3 Credit Hours)

Students will gain experience locating, evaluating, collecting, arranging, and disseminating content resources available as open educational resources to support learning and teaching. Issues surrounding open educational resources including copyright, licensing, access, and quality will be addressed. A primary focus will be on developing digital textbooks that may include websites, databases, current awareness experts, and digital field trips to support the delivery of instruction.

LIBS 608 Foundations of Libraries and Information (3 Credit Hours)

This course provides social, cultural, and historical perspectives on libraries and librarianship. The purpose, functions and processes of libraries and information are explored. Current types of libraries and information agencies are explored. Legal, ethical, advocacy, and economic policies, trends and positions are addressed.

LIBS 609 History of Books and Libraries (3 Credit Hours)

This course provides a historical perspective on books and libraries as social and cultural objects and spaces. Surveys the history of communication technologies from early history through current events and from stone tablets to electronic formats.

LIBS 610 Preservation Management in Libraries and Archives (3 Credit Hours)

An introduction to the principles and practice of preservation with an emphasis on the management of preservation activities. Includes physical and intellectual preservation of records and media and the history, kinds of materials and treatments, techniques and technologies, and digitization and digital records. Issues of storage, security, and disaster prevention and response will also be addressed.

LIBS 611 Community Archiving (3 Credit Hours)

All communities create historical records, and recent decades have brought a growing critical awareness of how existing social hierarchies influence the creation and maintenance of historical archives. Community archive projects locate the power to preserve and shape history, heritage, and memory in communities themselves. Through readings, discussion, and analysis, this course will introduce students to a range of issues relating to grassroots community archives, archives of community organizations, and what happens when larger institutions partner with communities and community organizations to create and maintain archives.

Prerequisites: LIBS 608

LIBS 612 Research Methods in Library and Information Studies (3 Credit Hours)

This course will introduce students to theoretical and applied research design, methodologies, and evaluation of research in library and information science (LIS). The course will include a review of existing research, allowing students to evaluate and assess the potential value of literature and research findings through critical analysis. Basic qualitative and quantitative research protocols will be learned through this class.

Pre- or corequisite: LIBS 608

LIBS 614 Information Ethics (3 Credit Hours)

Introduces the major theories and basic concepts of ethics. Historical and contemporary professional frameworks and positions will be analyzed in ethical contexts. Students will apply ethical principles to dilemmas and decision making in the information and library profession.

Prerequisites: LIBS 608

LIBS 615 Action Research for School Librarians (3 Credit Hours)

This course explores action research in a school library. Students will examine the value and characteristics of educational action research and apply these ideas toward the development of an action research project. Topics include the evaluation of published action research projects, community-based assessment, data collection and analysis, and the design and development of a project conducted in a school library setting.

LIBS 642 Children's Literature PREK-8 (3 Credit Hours)

Students examine, evaluate, discuss, and use literature and related materials for children and young adolescents and explore strategies for introducing and using literature with children.

Prerequisites: graduate standing

LIBS 644 Literature and Media for Young Adults (3 Credit Hours)

An exploration of the selection of literature and media for young adults (ages 12 - 18). Includes current trends and research in teens' social, physical and cultural development, teen interests and needs, and multiple literacies. Focus is on multiple formats, diverse learners, and strategies to promote reading for information, pleasure and lifelong learning.

Prerequisites: Graduate standing

LIBS 647 Reading and Literature for Adults (3 Credit Hours)

Survey of trends and selection tools in literature and reading for adult library patrons including popular fiction and non-fiction genres in multiple formats and across life stages in adulthood. Strategies will include reader's advisory, book clubs, and other programming to meet the diverse needs and interests of adult readers.

LIBS 648 Reading, Evaluating, and Selecting Graphic Novels (3 Credit Hours)

This course explores the use, selection and evaluation of literature and media that use sequential art to tell stories in a visual format: comics, webcomics, graphic novels, and more. The course will include the history of the sequential art format; an exploration of reading through a variety of graphics, text and media; and a survey of current and historical titles for all ages. Students will explore resources for selecting and evaluating materials in graphic format as well as specific applications for graphic materials in classrooms and libraries.

LIBS 649 Storytelling (3 Credit Hours)

Explores storytelling for the purpose of informing, entertaining and/or educating in an information setting. This course introduces narrative structure and technique using a variety of different media. Storytelling strategies help students gain communication skills and practice. Students will explore the potential use of storytelling for a variety of age groups, from preschool through adults, and for special audiences.

LIBS 653 User Centered Design in Library and Information (3 Credit Hours)

This course introduces current and future information professionals to user-centered design in library and information studies. Students learn how to conduct research with users, gather users' requirements, and develop intuitive, user-friendly interfaces (e.g., software, mobile applications). Theories and techniques for engaging users and designing user-centered interfaces are learned and applied.

Prerequisites: LIBS 608

LIBS 654 Information Literacy Instruction (3 Credit Hours)

Students will develop expertise in the delivery of in-person and online information literacy and research instruction in library and information contexts through an exploration of various information literacy models, standards, and theories. Students will gain practical experience in planning, implementing, and assessing library instruction and digital learning objects through a variety of delivery methods.

LIBS 655 Methods and Strategies for the School Library (1-3 Credit Hours)

Participants will draw from research-based theory of pedagogical best practice to discuss, model and apply practical applications to content topics. Content focuses on strategies to implement effective classroom management for the library learning environment, engage library learners and assess their performance, and build collaborative relationships that integrates library and content instruction into practice.

LIBS 656 User Services and Programming (3 Credit Hours)

An overview of the planning, evaluation, and administration of programs and services designed to meet the needs and interests of individuals and groups in libraries and other information spaces.

LIBS 657 LGBTQIA+ Issues in Public Libraries (3 Credit Hours)

The populations served by public libraries are varied and diverse, and they require resources that will address these diverse needs. Budgetary and political concerns, among other things, often restrict the ability of libraries to fulfill the needs of 'invisible populations,' or groups whose minority status is not readily or visually apparent, such as the lesbian, gay, bisexual, transgender, queer, intersex, asexual plus (LGBTQIA+) community. This course is designed to bring particular issues the LGBTQIA+ community may have in relation to public libraries to the forefront and provide students with the tools to address these issues in the field.

LIBS 658 Knowledge Resources: Planning, Selecting & Managing Collections (3 Credit Hours)

Examines the concepts and issues related to the lifecycle of recorded knowledge and information including emerging technologies. Addresses fundamentals of planning, selecting, analyzing, managing, and developing collections and technology resources for diverse communities.

Pre- or corequisite: LIBS 608

LIBS 668 Internship in Libraries and Information Workplaces (1-9 Credit Hours)

Students will work in a library or related workplace, fully participating in the day-to-day operations including administrative tasks, instruction, and/or other programming and services. Students taking this course for school library endorsement may have additional requirements/prerequisites.

Prerequisites: LIBS 608, LIBS 658, LIBS 677, and LIBS 674

LIBS 669 Internship in School Libraries (3-6 Credit Hours)

Students will work in a school library setting, participating fully in the administrative tasks, collaborative planning with teaching peers, and preparation and delivery of instructional lessons. This course is for students who are already licensed teachers or who are seeking initial licensure in school librarianship.

Prerequisites: LIBS 602, LIBS 608, LIBY 642, LIBS 644, LIBS 658, LIBS 674, LIBS 676, OR LIBS 677

LIBS 674 Library Management and Leadership (3 Credit Hours)

An examination of the critical issues concerning the leadership and management of a library. Students will explore the issues involved in building library programs to include considerations of physical space, budgetary decisions, and personnel.

Pre- or corequisite: LIBS 608

LIBS 676 Library Media Services and the Curriculum (3 Credit Hours)

Emphasis is on library services/ programs and the curriculum of the school. Includes techniques for curriculum design and development, information skills instruction, instructional partnerships, advocacy, implementation of an integrated library-media instructional program and public relations programs.

Pre- or corequisite: LIBS 602 and LIBS 608

LIBS 677 Knowledge Organization and Access (3 Credit Hours)

Describes the fundamentals whereby library materials are uniformly described and made available through recognized cataloging, processing, organizing and accessing of materials. In this course, students will develop the ability to apply and adapt the principles of classifying and cataloging, and will understand how these fundamental skills fit into the broader area of technical processing and how they support the principles of services in the library.

Pre- or corequisite: LIBS 608

LIBS 679 Theory and Management of Reference and Information Retrieval (3 Credit Hours)

Students will explore database structures, search algorithms, indexing principles, and user interfaces for information search and retrieval. Current issues in the evaluation, acquisitions and management of databases and other information resources will be addressed. Includes advanced strategies for effective information search and educating and assisting users in search techniques and evaluation.

Prerequisites: LIBS 677

LIBS 680 Culturally Responsive Librarianship (3 Credit Hours)

This course provides thought-provoking background and practical suggestions for engaging with a diverse population. Participants explore their own assumptions about race, class, and culture and learn strategies for creating environments and an open dialog that are culturally inviting to all.

LIBS 681 Assessment and Evaluation in Library and Information Science (3 Credit Hours)

Students will explore assessment and evaluation related to library and information contexts with particular attention to historical and current theories and values, relevant standards, and current initiatives and measures. Students will design an evaluation of a current library service or resource that is connected to library goals and objectives with a presentation to effectively communicate data to various stakeholders.

Prerequisites: LIBS 608

LIBS 684 Advanced Library Management (3 Credit Hours)

Reviews the advanced knowledge and competencies required for the senior administration level of all types of libraries and library systems. Competencies include budgeting and analysis, project management, human resources, and the development of library reporting and advocacy materials.

Prerequisites: LIBS 674

LIBS 687 Cataloging and Classification (3 Credit Hours)

Cataloging and metadata principles introduced in LIBS 677 are further developed and applied in this course. Students will apply principles of bibliographic description, subject analysis, and classification to a variety of formats including multimedia, serials, and online resources. The course will address systems, technology and trends in cataloging and metadata environments.

Prerequisites: LIBS 677 or instructor approval

LIBS 690 Seminar in Academic Libraries (3 Credit Hours)

Academic libraries are dynamic organizations, working to meet the needs of their users and stakeholders while supporting parent higher education institutions. This course examines the functions of the academic library within the higher education environment. A wide variety of topics are covered in this survey of the field, including a focus on the historical background, current trends, and future directions in academic librarianship.

LIBS 691 Seminar in Public Libraries (3 Credit Hours)

Students will gain an understanding of public libraries in the United States and their role within their communities. Topics covered include a historical background of public libraries, overviews of current trends, and future directions in public libraries. This course also explores public services, the roles and expectations of public librarianship as a career.

LIBS 693 Seminar in Archives and Special Collections (3 Credit Hours)

An introduction to the nature of archives and special collections. The course explores the history of special collections, archives, records, and cultural memory. Aspects of the profession including ethics, values, financial and legal responsibilities are included. Students will be introduced to the basic knowledge, tools, methods and practices associated with archival work.

LIBS 694 Seminar in Social Justice in Library and Information Work (3 Credit Hours)

In this seminar course, students will explore current social justice issues through an activist framework. Historical and contemporary frameworks, positions and initiatives related to the library profession will be considered. The course will examine professional structures, documents, emerging frameworks and social actions as they relate to specific topics of social justice.

LIBS 695 Topics in Library and Information Studies (1-3 Credit Hours)

This course provides opportunities for graduate students to explore current topics, trends and issues related to libraries and information studies.

LIBS 697 Independent Study in Library Science (1-3 Credit Hours)

This course is an independent study of special topics in Library Science.

Prerequisites: Instructor approval required

LIBS 998 Master's Graduate Credit (1 Credit Hour)

This course is a pass/fail course for master's students in their final semester. It may be taken to fulfill the registration requirement necessary for graduation. All master's students are required to be registered for at least one graduate credit hour in the semester of their graduation.

Math Pedagogy (MAPD)**MAPD 601 Number and Operations for PK-8 Mathematics Specialists (3 Credit Hours)**

This course will meet the requirements of students in the Master of Science in Education: PK-8 Mathematics Specialist Endorsement Program, and cannot be used for credit toward any degree offered by the Department of Mathematics and Statistics. The course introduces students to a number of topics in PK-8 mathematics and related pedagogical methods. Acknowledging that learning with understanding occurs through a process of establishing a solid knowledge base upon which to build, students will explore the many and varied ways in which PK-8 students may develop number sense. The focus will be upon the development of best practices for teaching mathematics. This requires that the student have knowledge of the content, use a variety of pedagogical approaches, and be able to select and utilize appropriate manipulatives and technological resources that will foster PK-8 student understanding.

MAPD 602 Geometry and Measurement for PK-8 Mathematics Specialists (3 Credit Hours)

This course will meet the requirements of students in the Master of Science in Education: PK-8 Mathematics Specialist Endorsement Program, and cannot be used for credit toward any degree offered by the Department of Mathematics and Statistics. The course introduces students to a number of topics in PK-8 mathematics and related pedagogical methods. Following a "concrete-to-abstract" developmental learning approach, students will explore the mathematical concepts of measurement and geometry in grades PK-8. Emphasis will be placed upon measurement and geometry content knowledge as well as the pedagogical knowledge specific to mathematics teaching and learning. Students will also learn to use appropriate technology.

MAPD 603 Rational Numbers and Proportional Reasoning for PK-8 Mathematics Specialists (3 Credit Hours)

This course will meet the requirements of students in the Master of Science in Education: PK-8 Mathematics Specialist Endorsement Program, and cannot be used for credit toward any degree offered by the Department of Mathematics and Statistics. The course introduces students to a number of topics in PK-8 mathematics and related pedagogical methods. It is designed to engage participants in constructing relational understanding between theoretical development of mathematics and students' learning of mathematics in the content strands of rational numbers and proportional reasoning. Students will learn how to select and use manipulatives to connect the concrete phase of mathematical learning to the abstract, symbolic phase. Various technologies will be integrated throughout the course as tools to enhance teaching and student understanding.

MAPD 604 Probability and Statistics for PK-8 Mathematics Specialists (3 Credit Hours)

This course will meet the requirements of students in the Master of Science in Education: PK-8 Mathematics Specialist Endorsement Program, and cannot be used for credit toward any degree offered by the Department of Mathematics and Statistics. The course introduces students to a number of topics in PK-8 mathematics and related pedagogical methods. It will focus on the content and processes that support the PK-8 students' learning of probability and statistics. Instruction will cover data collection, display, and analysis as well as the development of a fundamental understanding of probabilistic structures. These structures will be related to real world problem solving and hands-on activities. Technology will be integrated throughout the course to illustrate mathematical concepts, facilitate students exploration, and to make and test hypotheses.

MAPD 605 Algebra and Functions for PK-8 Mathematics Specialists (3 Credit Hours)

This course will meet the requirements of students in the Master of Science in Education: PK-8 Mathematics Specialist Endorsement Program and cannot be used for credit toward any degree offered by the Department of Mathematics and Statistics. The course introduces students to algebraic topics in PK-12 mathematics and related pedagogical methods. Topics will focus on making connections between arithmetic and algebra and transitioning concrete arithmetic thinking to abstract algebraic thinking. Technology will be included to enhance students' algebraic understanding and sense making.

Science, Technology, Engineering, and Mathematics Education (STEM)

STEM 533 Developing Instructional Strategies PreK-6: Mathematics (3 Credit Hours)

Following a theory into practice philosophy, students explore, develop, and use instructional strategies, materials, technologies, and activities to promote children's development of attitudes, behaviors, and concepts in mathematics in grades PreK-6 in support of NCTM national instructional standards and the Virginia Standards of Learning.

Prerequisites: TLED 617

STEM 534 Developing Instructional Strategies PreK-6: Science (3 Credit Hours)

Following a theory into practice philosophy, students explore, develop, and use instructional strategies, materials, technologies, and activities to promote children's development of attitudes, behaviors, and concepts in science in grades PreK-6 in support of AAAS national instructional standards and the Virginia Standards of Learning.

STEM 554 Developing Instructional Strategies for Teaching in the Middle/High School: Science (3 Credit Hours)

Following a theory/research-into-practice philosophy, students explore, develop, and use instructional strategies, materials, technologies, and activities to promote the development of attitudes, behaviors, and concepts in science, grades 6-12, informed by national instructional standards and the Virginia Standards of Learning; 35 hours of teaching practicum required.

Prerequisites: TLED 617, or TLED 677, passing scores on the Praxis Core examination or equivalent SAT scores as established by VA Board of Education, a criminal background check, acceptance into teacher education, grade requirement in the specific content area and professional education core, minimum major and overall GPA of at least 2.75; additional prerequisite for MCTP students is TLED 608

STEM 595 Topics (1-3 Credit Hours)

The advanced study of selected topics designed to permit small groups of qualified students to work on subjects of mutual interest which, due to their specialized nature, may not be offered regularly. These courses will appear in the course schedule.

STEM 654 Science in the Elementary/Middle School (3 Credit Hours)

Current developments and educational research are applied to instructional methodology with an emphasis on hands-on activities in the school science curriculum.

STEM 655 Culturally Responsive Classroom (3 Credit Hours)

This course will focus on the following elements of effective teaching practice: understanding discipline specific content and methods, employing best-practice strategies to teach discipline specific skills and concepts, assessing student learning, legal and safety issues, use of technology, issues of diversity, engagement with the community, and strategies for continuing to grow as a teacher and learner.

STEM 720 STEM Educational Foundations (3 Credit Hours)

A multidisciplinary course designed to provide insights about the fundamental concepts and basis for STEM education programs. Standards for the school subjects of science, technology, engineering education and mathematics literacy will be reviewed. Connections between these subjects will be explored.

STEM 721 Science, Technology, Engineering, and Mathematics Connection and Integration (3 Credit Hours)

A course designed to teach how to plan integrated STEM curriculum and instructional materials. A review of projects that have undertaken STEM integration will be made. Students will learn how to map STEM content and then design STEM integrated curriculum and instructional materials.

Prerequisites: STEM 720 or STEM 820

STEM 730 Introduction to Technology (3 Credit Hours)

Order and structure the discipline of technology by identifying and analyzing the component parts and examining technical means as critical variables in the affairs of humankind. Based on the Standards for Technological Literacy.

STEM 731 Technical Systems (3 Credit Hours)

Analyze the technical concepts common and unique to the technical systems of technology.

STEM 732 Program Development for Technology Education (3 Credit Hours)

Plan and develop effective program in technology related activities. Focus is on identification and development of resources, activities, and materials for classroom programs.

STEM 795 Topics (1-3 Credit Hours)

STEM 820 STEM Educational Foundations (3 Credit Hours)

A multidisciplinary course designed to provide insights about the fundamental concepts and basis for STEM education programs. Standards for the school subjects of science, technology, engineering education and mathematics literacy will be reviewed. Connections between these subjects will be explored.

STEM 821 Science, Technology, Engineering, and Mathematics Connection and Integration (3 Credit Hours)

A course designed to teach how to plan integrated STEM curriculum and instructional materials. A review of projects that have undertaken STEM integration will be made. Students will learn how to map STEM content and then design STEM integrated curriculum and instructional materials.

Prerequisites: STEM 720 or STEM 820

STEM 830 Introduction to Technology (3 Credit Hours)

Order and structure the discipline of technology by identifying and analyzing the component parts and examining technical means as critical variables in the affairs of humankind. Based on the Standards for Technological Literacy.

STEM 831 Technical Systems (3 Credit Hours)

Analyze the technical concepts common and unique to the technical systems of technology.

STEM 832 Program Development for Technology Education (3 Credit Hours)

Plan and develop effective program in technology related activities. Focus is on identification and development of resources, activities, and materials for classroom programs.

STEM 895 Topics (3 Credit Hours)

STEM Education and Professional Studies (SEPS)

SEPS 500 Instructional Systems Development (3 Credit Hours)

Students learn how to design and develop classroom instructional materials including career and technical education and training curricula and programs for youths and adults. Skills in this area include the selection and use of materials, including media and computers and evaluation of pupil performance. Training specialist students learn to develop instructional materials using the instructional systems design process. Career and technical education students learn to plan instruction, to implement competency-based and standards-based education, and to modify and use the Virginia career and technical education curriculum guides.

SEPS 501 Foundations of Career and Technical Education (3 Credit Hours)

This course is designed to teach career and technical education majors to plan, develop, and administer a comprehensive program of career and technical education for high school students and adults. Students also develop an understanding of the historical and sociological foundations underlying the role, development and organization of public education in the United States.

SEPS 502 Instructional Methods in Occupational Studies (3 Credit Hours)

Designed to develop a student's ability to use basic instructional techniques and methods applicable to career and technical education, and adults in business, government, and industrial organizations. It involves videotaped micro-teaching demonstrations.

SEPS 503 Methods in Career and Technical Education (3 Credit Hours)

A practical study and application of recommended methods of teaching career and technical education to high school students. Video-taped micro-teaching demonstrations are included. The course should be taken the semester prior to student teaching.

SEPS 508 Advanced Classroom Issues and Practices in Career and Technical Education (3 Credit Hours)

An overview of classroom issues and practices for prospective career and technical teachers. The course covers classroom management and safety, communication processes, reading in the content area and child abuse and neglect recognition and intervention. Students learn the legal requirements and alternative teaching strategies for serving students with special needs. Students visit schools for a 30-hour student observation. PRAXIS II completion is a course requirement.

Prerequisites: junior standing and passing scores on PRAXIS I or State Board of Education-approved SAT or ACT scores

SEPS 509 Fashion Forecasting Market Trip (3 Credit Hours)

This is the study of planning and conducting a fashion buying trip to one of the major fashion markets in the United States like the Las Vegas Magic Trade Show. The students envision themselves as buyers in action and learn how trend forecasting and creative presentations help market fashion products and services to trade customers and consumers.

SEPS 510 The Foreign Fashion Market Trip (3 Credit Hours)

Students plan and conduct a fashion buying trip to a foreign market in Europe or Asia, and learn how to buy merchandise in the global marketplace. The course requires students to go on the trip as well as attend the pre- and post-trip classes.

Prerequisites: SEPS 208

SEPS 511 Fashion Show Production (3 Credit Hours)

Students plan and produce a fashion show. They examine each behind-the-scenes step from concept to execution as they organize and stage a show that is profitable, entertaining, and aesthetically pleasing.

SEPS 523 Visual Merchandising and Display (3 Credit Hours)

This course is designed to introduce students to the best practices and effective strategies in visual merchandising. It will provide the basic framework with which prospective merchandisers plan and construct visual displays that enhance the selling of merchandise and ideas.

Prerequisites: permission of the instructor

SEPS 524 Fashion, Textiles, and Construction Analysis (3 Credit Hours)

This course explores information related to new technological advances in the textile/apparel industry and determines consumer preferences and concepts of fashion product quality. It includes the development of standards for judging qualities of merchandise. Fabrics are examined to determine the value they provide to the apparel and accessories customer.

Prerequisites: permission of the instructor

SEPS 531 Web-Based Organization for Fashion (3 Credit Hours)

This course provides the basic communications foundations needed to conceive, plan, develop, implement, and maintain a Web-based organization for fashion. Upon completion, students will understand what is required to plan, launch and maintain a successful online venture, limited only by the willingness of the student to explore these technological advances.

SEPS 535 International Retailing (3 Credit Hours)

This course examines globalization and the development of an integrated global economy. Primary emphasis is placed on the strategies for successful global business expansion for retailers in international markets.

SEPS 540 Fashion Global Sourcing/Supply Chain Management (3 Credit Hours)

This course examines the role of global sourcing in the strategic positioning of retailers in the global economy. Emphasis is placed on economic, political, logistical, and ethical factors affecting world trade and global sourcing decisions.

SEPS 550 Assessment, Evaluation and Improvement (3 Credit Hours)

This course prepares training and educational professionals to plan for and conduct assessments to use in planning instructional programs, evaluate individual learning, monitor student progress, measure program effectiveness and efficiency, and evaluate the return on investments of training courses and programs.

SEPS 584 Student Teaching Mentored (6-12 Credit Hours)

Classroom placement in school systems for students to apply content and methodologies. The student is mentored by a school mentor and university faculty. This course is for newly hired teachers on provisional contracts.

Prerequisites: completion of the approved teacher education program in the major area, departmental approval, and permission of the director of teacher education services; passing scores on PRAXIS I or State Board of Education-approved SAT or ACT scores and passing scores on the appropriate PRAXIS II content examination required

SEPS 586 Middle School Student Teaching for Technical Education (6 Credit Hours)

Classroom placement for student teaching in a middle school technology laboratory. Students apply content and methodology under the supervision of a cooperating teacher and university faculty member. Available for pass/fail grading only.

Prerequisites: SEPS 408, SPED 313, TLED 408 and SEPS 450; or SEPS 508, 596, STEM 730, SEPS 788, TLED 608, READ 680 for graduate students; passing scores on PRAXIS I or State Board of Education-approved SAT or ACT scores and passing scores on the appropriate PRAXIS II content examination are required

SEPS 595 Topics in Occupational Education (1-3 Credit Hours)

The department offers selected topics designed to permit small groups of qualified students to work in subjects of mutual interest which, due to their specialized nature, may not be offered regularly.

Prerequisites: permission of the instructor

SEPS 596 Topics in Career and Technical Education (1-3 Credit Hours)

The department offers selected topics designed to permit small groups of qualified students to work in subjects of mutual interest which, due to their specialized nature, may not be offered regularly.

Prerequisites: permission of the instructor

SEPS 597 Independent Study in Occupational Education (1-6 Credit Hours)

Independent study.

Prerequisites: permission of the instructor

SEPS 636 Problems in Occupational and Technical Studies (3 Credit Hours)

Taken the last semester of graduate work. Practice in the use of statistical and analytical techniques in solving problems in occupational and technical studies related to secondary, community college, and training environments.

Prerequisites: FOUN 612

SEPS 695 Topics in Occupational Education (1-3 Credit Hours)

The department offers selected topics designed to permit groups of qualified students to work on subjects of mutual interest which, due to their specialized nature, may not be offered regularly.

SEPS 696 Topics in Occupational Education (1-3 Credit Hours)

The department offers selected topics designed to permit groups of qualified students to work on subjects of mutual interest which, due to their specialized nature, may not be offered regularly.

SEPS 697 Independent Study in Occupational Education (1-3 Credit Hours)

Individual study under the supervision of a graduate faculty member.

Prerequisites: permission of the instructor

SEPS 698 Thesis in Occupational Education (3-6 Credit Hours)

Research and writing of the master's thesis and scheduled conferences with the candidate's advisor.

Prerequisites: permission of the advisor

SEPS 740 Readings in Occupational and Technical Studies (3 Credit Hours)

A guided review of the literature to determine the history, development, and issues of occupational and technical education, including specialization in technology education, career and technical education specialties, and human resources training.

SEPS 750 Trends and Issues in Training: Modeling and Simulation (3 Credit Hours)

This course is designed to explore the issues and trends in developing and implementing technology-based training with emphasis on modeling and simulation.

SEPS 760 Trends and Issues in Occupational Education (3 Credit Hours)

This course prepares training and educational professionals to plan for and conduct assessments to use in planning research findings and issues related to tech prep and other articulated programs being established in secondary schools, community colleges, and four-year institutions.

Prerequisites: junior standing

SEPS 761 Foundations of Adult Education and Training (3 Credit Hours)

This course is a study of adult education and training in many settings including the community college, business, industry, labor, government, the military, and social service agencies of many types. An attempt will be made to assess the important trends or directions such activities are taking, including the needs of non-traditional learners and education and labor.

SEPS 762 Administration and Management of Education and Training Programs (3 Credit Hours)

This course deals with organizational policy, human and financial resources, facilities, and the planning process as applied to occupational education and adult training programs.

SEPS 765 Trends and Issues of Economic and Workforce Development (3 Credit Hours)

An analysis of economic trends and issues that lead to workforce development decisions. Focus is on planning for educational and training programs to meet workforce needs dictated by local and regional economic issues. This course is designed for community college and school system personnel.

Prerequisites: student must be accepted into doctoral program or have permission of the instructor

SEPS 785 Curriculum Development in Occupational Education and Training (3 Credit Hours)

A course designed to prepare students to design and develop curriculum for occupational education and training courses and programs. Included is a focus on articulation between secondary and post-secondary curriculum.

SEPS 787 Career and Technical Education Curriculum (3 Credit Hours)

Learn the various curriculum options taught in secondary schools under the auspices of career and technical education. Work from an administrative standpoint to learn the mission and goals of the various subject areas and plan to direct such efforts.

SEPS 788 Instructional Strategies for Innovation in Training and Occupational Education (3 Credit Hours)

Learning and teaching styles are considered as a basis for developing instructional strategies to maximize occupational and technical education at all levels, including secondary, the community college, and senior institutions. Relevant learning theories and knowledge of self, learner, and the environment are blended to enhance the participants' instructional strategies.

SEPS 789 Instructional Technology in Education and Training (3 Credit Hours)

A course that provides insights about trends, issues, and the applications of instructional technologies as they may be applied to education and training environments. Topics include selected technical processes and electronic media to solve practical problems in educations and training.

SEPS 790 Practicum in Occupational Education (3 Credit Hours)

Individually prescribed instruction under the supervision of a graduate faculty member. Study intended to professionally fulfill development of graduate candidates.

Prerequisites: permission of the graduate program director

SEPS 795 Topics in Occupational Education (1-3 Credit Hours)

The department offers selected topics designed to permit groups of qualified students to work on subjects of mutual interest which, due to their specialized nature, may not be offered regularly.

SEPS 797 Independent Study in Occupational Education (1-6 Credit Hours)

Individual study under the supervision of a graduate faculty member.

Prerequisites: Permission of the instructor

SEPS 835 Research Design for Occupational and Technical Studies (3 Credit Hours)

Analyses of current research and needs in occupational and technical studies. Students analyze the literature and develop a research focus for future graduate studies.

SEPS 840 Readings in Occupational and Technical Studies (3 Credit Hours)

A guided review of the literature to determine the history, development, and issues of occupational and technical education, including specialization in technology education, career and technical education specialties, and human resources training.

SEPS 850 Trends and Issues in Training: Modeling and Simulation (3 Credit Hours)

This course is designed to explore the issues and trends in developing and implementing technology-based training with emphasis on modeling and simulation.

SEPS 860 Trends and Issues in Occupational Education (3 Credit Hours)

Trends in philosophy, workforce needs, curriculum and teaching procedures in occupational and technical education. Analysis of research findings and issues related to tech prep and other articulated programs being established in secondary schools, community colleges, and four-year institutions.

SEPS 861 Foundations of Adult Education and Training (3 Credit Hours)

This course is a study of adult education and training in many settings including the community college, business, industry, labor, government, the military, and social service agencies of many types. An attempt will be made to assess the important trends or directions such activities are taking, including the needs of non-traditional learners and education and labor.

SEPS 862 Administration and Management of Education and Training Programs (3 Credit Hours)

This course deals with organizational policy, human and financial resources, facilities, and the planning process as applied to occupational education and adult training programs.

SEPS 865 Trends and Issues of Economic and Workforce Development (3 Credit Hours)

An analysis of economic trends and issues that lead to workforce development decisions. Focus is on planning for educational and training programs to meet workforce needs dictated by local and regional economic issues. This course is designed for community college and school system personnel.

Prerequisites: student must be accepted into doctoral program or have permission of the instructor

SEPS 868 Internship (3 Credit Hours)

Supervised assignment to an agency operating an occupational education or training program.

Prerequisites: permission of the instructor

SEPS 885 Curriculum Development in Occupational Education and Training (3 Credit Hours)

A course designed to prepare students to design and develop curriculum for occupational education and training courses and programs. Included is a focus on articulation between secondary and post-secondary curriculum.

SEPS 887 Career and Technical Education Curriculum (3 Credit Hours)

Learn the various curriculum options taught in secondary schools under the auspices of career and technical education. Work from an administrative standpoint to learn the mission and goals of the various subject areas and plan to direct such efforts.

SEPS 888 Instructional Strategies for Innovation in Training and Occupational Education (3 Credit Hours)

Learning and teaching styles are considered as a basis for developing instructional strategies to maximize occupational and technical education at all levels, including secondary, the community college, and senior institutions. Relevant learning theories and knowledge of self, learner, and the environment are blended to enhance the participants' instructional strategies.

SEPS 889 Instructional Technology in Education and Training (3 Credit Hours)

A course that provides insights about trends, issues, and the applications of instructional technologies as they may be applied to education and training environments. Topics include selected technical processes and electronic media to solve practical problems in educations and training.

SEPS 890 Practicum in Occupational Education (3 Credit Hours)

Individually prescribed instruction under the supervision of a graduate faculty member. Study intended to professionally fulfill development of graduate candidates.

Prerequisites: permission of the graduate program director

SEPS 895 Topics in Occupational Education (1-3 Credit Hours)

The department offers selected topics designed to permit groups of qualified students to work on subjects of mutual interest which, due to their specialized nature, may not be offered regularly.

SEPS 897 Independent Study in Occupational Education (1-6 Credit Hours)

Individual study under the supervision of a graduate faculty member.

Prerequisites: Permission of the instructor

SEPS 899 Dissertation in Occupational Education (1-12 Credit Hours)

Work on pre-selected dissertation topics under the direction of dissertation committee chair.

Prerequisites: permission of dissertation committee chair

SEPS 998 Master's Graduate Credit (1 Credit Hour)

This course is a pass/fail course for master's students in their final semester. It may be taken to fulfill the registration requirement necessary for graduation. All master's students are required to be registered for at least one graduate credit hour in the semester of their graduation.

SEPS 999 Doctoral Graduate Credit (1 Credit Hour)

This course is a pass/fail course doctoral students may take to maintain active status after successfully passing the candidacy examination. All doctoral students are required to be registered for at least one graduate credit hour every semester until their graduation.