Department of Criminal Justice

169 Albert W. Brown Building
(585) 395-2665

Chair and Associate Professor: Korni Swaroop Kumar, PhD, Temple University-Philadelphia; Assistant Professors: Ann Bunch, PhD, University of Chicago; James Ross, JD, University of Buffalo; Addrain Conyers, PhD, Southern Illinois University at Carbondale; Moon Sun Kim, PhD, University of Albany; Visiting Assistant Professor: Bivette M. Stodghill, University of Albany; Associate Professors Emeritus: Larry R. Bassi; Richard G. Frey; Richard Lumb; Roger B. McNally.

The criminal justice program is for students interested in studying the causes, prevention and control of crime, as well as the theories and policies relative to the structure and operation of various police, security, correctional and judicial organizations. The department’s curricular and programmatic philosophy is primarily professional, though students are exposed to a wide array of intellectual disciplines across the College.

The criminal justice major prepares students for criminal justice careers in professional justice agencies. Careers in criminal justice can be categorized by a variety of organizations: state and local police; correctional organizations for adult and juveniles (i.e. those in probation, after care, related institutions, and public and nonprofit residential care); federal law enforcement/security organizations; private security; legal and judicial organizations.

The College at Brockport criminal justice graduates have taken positions with agencies such as the New York City Police, New York State Police, State Corrections Department, Division for Youth, Monroe County Public Defender’s Office, Victim Assistance Unit, court systems, and a variety of criminal justice agencies outside New York. Many serve in federal agencies, such as the State Department, Secret Service, Drug Enforcement Agency, FBI, US Customs, Immigration and Naturalization, Department of Defense, and Federal Probation and Parole. Others are employed in private security with companies such as Eastman Kodak Company, Xerox Corporation and Pinkerton. Many graduates work for human service agencies such as Hillside Children’s Center, Lifetime Assistance, Inc. and the Big Brother/Big Sister Program.

Other The College at Brockport graduates have continued their education in law, criminal justice, counseling, and public administration, with such institutions as The College at Brockport, SUNY Buffalo, SUNY Albany, Adelphi University, John Jay College, Michigan State University, University of Maryland, Rutgers University and Albany Law School.

Special Affiliations
A chapter of Alphi Phi Sigma (National Criminal Justice Honor Society) and a Criminal Justice Student Association are active at The College at Brockport. The department also honors its most intellectual students with an invitation to the “Order of Cicero.” Students are encouraged to study criminal justice and comparative jurisprudence at Brunel University in Great Britain, study during summer or spring in Ireland at the Waterford Institute, or participate in the College’s Washington, DC, and Albany Semester programs, British internships, or other local internship placements.

Criminal Justice
Criminal justice is both a professional and a liberal arts program. Specifically, the criminal justice major consists of three components: non-criminal justice courses (corequisites), many in related liberal arts disciplines, which can be taken during the first two years of college; criminal justice proficiency courses; and criminal justice electives, which can be grouped into specialty areas or not, at the student’s option.

Students must earn a minimum of 36 credits of course work in criminal justice, 18 of which must be taken at Brockport. The criminal justice core consists of an introductory course in criminal justice; process courses in police, adjudication, corrections, and juvenile justice; criminology; research methods; and criminal law. Specialty areas of elective criminal justice courses may be
selected focusing on police, corrections, security administration, international criminal justice, and legal studies.

To prepare for the major, freshman and sophomore students are urged to take Introduction to Sociology, Introduction to Psychology, American Political Systems, an introductory course in computers, and courses that will enhance their writing skills. The more advanced corequisite courses will be taken during the junior and senior years. Note: An introductory course in statistics is a prerequisite to the required criminal justice course, CRJ 471 Research Methods. Many criminal justice majors transfer with associate’s degrees from community colleges in New York State.

Admission to the Major
Students seeking acceptance into the criminal justice major must meet the following criteria:
1. Completion of an associate’s degree, or 54 credits toward a baccalaureate degree at another school, or 24 credits at The College at Brockport;
2. A cumulative grade point average of 2.5 or better.
Application by Brockport students for the major will ordinarily be made during the fall semester of the sophomore year.

Requirements
The required courses for the degree are:

I. General Education Program courses required of all bachelor of science students.

II. Corequisite Courses (21 credits)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOC 100</td>
<td>Introduction to Sociology</td>
<td>3</td>
</tr>
<tr>
<td>PSH 110</td>
<td>General Psychology</td>
<td>3</td>
</tr>
<tr>
<td>OR</td>
<td>General Psychology with Lab</td>
<td>3</td>
</tr>
<tr>
<td>PLS 113</td>
<td>American Political Systems</td>
<td>3</td>
</tr>
<tr>
<td>An approved ethnic minorities course</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>An approved statistics course</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Two upper-division (300/400 level) courses, one of each in two of the following three disciplines: sociology, psychology or political science</td>
<td>6</td>
<td></td>
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</tbody>
</table>

III. Criminal Justice Core Proficiencies (24 credits)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CRJ 101</td>
<td>Introduction to Criminal Justice</td>
<td>3</td>
</tr>
<tr>
<td>CRJ 203</td>
<td>The Police Process</td>
<td>3</td>
</tr>
<tr>
<td>CRJ 207</td>
<td>The Corrections Process</td>
<td>3</td>
</tr>
<tr>
<td>CRJ 305</td>
<td>The Adjudication Process</td>
<td>3</td>
</tr>
<tr>
<td>OR</td>
<td>Law and Legal Process</td>
<td>3</td>
</tr>
<tr>
<td>CRJ 311</td>
<td>Criminal Law</td>
<td>3</td>
</tr>
<tr>
<td>CRJ 343</td>
<td>Juvenile Justice Process</td>
<td>3</td>
</tr>
<tr>
<td>CRJ 471</td>
<td>Research Methods</td>
<td>3</td>
</tr>
<tr>
<td>CRJ 494</td>
<td>Criminology</td>
<td>3</td>
</tr>
</tbody>
</table>

IV. Criminal Justice electives and/or International Criminal Justice Educational Experience (12 credits).

At least four courses must be completed from a wide variety of electives. These may include courses selected with the advice and approval of the student's advisor in specialty areas of police, corrections, security administration, international criminal justice, or legal studies. The department encourages students to enroll in one of its three international programs in fulfillment of these criteria.
Minor in Forensic Science

The minor in forensic science emphasizes an interdisciplinary scientific approach to the social, behavioral, and natural sciences and their application to legal contexts. The theoretical and methodological approaches of various scientific disciplines are incorporated in this program. Students will be able to familiarize with a wide range of “players” involved in the scientific analysis, interpretation, recovery, treatment, and evaluation of physical and biological evidence, and subsequent testimony. With the glamorization of forensics and its utility in solving crimes, the reality of the meticulous, often grueling nature of forensic science is commonly misunderstood.

Having experienced interdisciplinarity in coursework and internships, forensic science minors will obtain a unique perspective, one that emphasizes critical thinking, analytical, and problem-solving skills. Evaluation of forensic data for the courtroom context is an ongoing, collaborative process among forensic scientists and others dealing with evidence. Thus, the minor degree program will prepare students to work in medical-legal laboratory and field contexts such as legal, law enforcement and other related possibilities, including medical-legal careers and investigations.

The interdisciplinary structure of the forensic science minor supports The College at Brockport’s commitment to students to the latest investigative methods and technologies, and approaches used by a variety of scientists; in turn, the applied nature of forensic science encourages students to consider information in a context beyond the classroom – that of the community, and the greater society.

Why Minor in Forensic Science?

This minor will allow students to explore the impact of various natural and social sciences in the medicolegal system in the United States today. With the continuing refinement of technologies that are applied to crime-solving and general evidence collection, the part that the sciences play in the public forum of the court system is noticeably expanding. Media presentations of crime labs and field criminalistics bombard viewers with technical terminology and concepts on the subject. There is a measurable influence on local communities and their expectations of the medicolegal system, known to professionals who work in this field as the “CSI effect.”

In order for students to have a realistic and practical understanding of the endeavor of forensic science, the Department of Criminal Justice proposes the forensic science minor. The core courses offered will outline and summarize the basic terms and theories needed to understand the workings of forensic science in the laboratory and in the field, as well as the way the law in the US incorporates evidence and scientific experts in court. The electives offered will provide the student exposure to specialized disciplines of his or her choice.

Entrance Requirements:

Students seeking acceptance into the forensic science minor must meet the following criteria:

a. Completion of an associate’s degree, or 54 credits toward a baccalaureate degree at another school, or 24 credits at The College at Brockport; and

b. A cumulative grade point average of 2.5 or better.

Minor Requirements:

Core courses:

The following courses are required:

- CRJ 304: Investigations
- CRJ 371: Introduction to Forensic Science
- CRJ 375: Forensic Law
Elective courses:
Reflecting the diversity of specialties included in forensic science investigations, the student may choose any three of the following electives, with approval of the minor advisor. Pre-requisite requirements must be followed unless otherwise stated.

- ANT 110 Introduction to Archaeology
- ANT 456 Forensic Anthropology
- ANT 441 Archaeological Analysis
- ANT 442/542 Archaeological Field Methods
- BIO 281 Elements of Human Biology
- BIO 302 Genetics
- CPS 301 Issues in Criminal and Forensic Computing
- CHM 205 College Chemistry I
- CHM 206 College Chemistry II
- CHM 260 Chemistry for Health Professionals
- CHM 303 Analytical Chemistry I
- CIS 202 Fundamentals of Information Systems
- CRJ 321 Crime Patterns
- CRJ 323 White Collar Crime
- CRJ 451 International Criminal Justice Systems
- CRJ 491.02 Introduction to GIS
- CRJ 494 Criminology
- CSC 356 Life in the Digital Age
- HLS 409 Introduction to Alcohol and Other Drugs
- HLS 428 Substance Abuse and the Criminal Justice System
- HSL 435/535 Evaluation and Assessment of Alcohol and Other Drugs
- HLS 445/545 Psychopharmacology of Alcohol and Other Drugs
- PHS 115 General Physics I with Lab
- PHS 116 General Physics II with Lab
- PHS 201 College Physics I with Lab
- PHS 202 College Physics II with Lab
- PSH 334 Abnormal Psychology

Department of Criminal Justice

Courses

**CRJ 101 Introduction to Criminal Justice (A).**
Covers the nature, scope and impact of crime in the US; independent and interdependent operations and procedures of police, courts and corrections; and introductory theories of crime and delinquency. 3 Cr. Every Semester.

**CRJ 203 Police Process (A).**
Covers the roles of law enforcement agencies at the local, state and federal levels; interrelationships with other criminal justice agencies; and selected law enforcement problems. 3 Cr. Fall.

**CRJ 207 The Corrections Process (A).**
Covers the history and evolution of corrections; the social organization of prisons; differences between adult and juvenile correction; and probation and parole practices and alternatives to incarceration. 3 Cr. Spring.

**CRJ 304 Investigations (B).**
Provides a comprehensive examination of investigations relative to both public and private modes, including most major felony processes and relevant civil actions. Focuses on the fundamentals of the investigative process and the range of skills necessary for successful performance and management of investigations, including evidence gathering and analysis, witness assessment, field techniques and linkage between investigative and prosecutorial agencies. 3 Cr.

**CRJ 305 Adjudication Process (A).**
Prerequisite: CRJ 101. Examines the organization and functions of the courts; pre- and post-trial motions and procedures; and the role of prosecutorial and defensive agencies. 3 Cr. Every Semester.
CRJ 311 Criminal Law (A). Prerequisite: CRJ 305 or PLS 320. Covers the historical development of criminal law in the US; the parties to crime, including principals/accessories; and the elements of crimes against persons and property, and moral offenses and defenses to such crimes. 3 Cr. Every Semester.

CRJ 313 Constitutional Criminal Procedure (A). Prerequisite: CRJ 305 or PLS 320 or instructor's permission. Covers the application of the Bill of Rights; rules governing evidence; and the legal concepts governing arrest, search and seizure, and interrogations and confessions. 3 Cr.

CRJ 321 Crime Patterns (B). Prerequisite: Six credits of CRJ courses or instructor's permission. Covers the extent and nature of crimes against property and person, methods of crime commission, and prevention and repression of crime. 3 Cr.

CRJ 323 White Collar Crime (A). Provides an historical and contemporary look at white collar/occupational crime in the United States. Analyzes the concept of occupational crime, counting and recording occupational crimes and criminals, explanations of occupational criminality, organizational occupational crime, state authority occupational crime, professional occupational crime, individual occupational crime, and sanctioning, social control, and occupational crime. 3 Cr.

CRJ 331 Community-Based Corrections (A). Prerequisite: CRJ 207 or instructor's permission. Explores the evolution of community-based corrections, the interrelationship between community based correction programs and other criminal justice agencies, and the role and involvement of the public in community-based corrections. 3 Cr.

CRJ 343 Juvenile Justice Process (A). Prerequisite: Six credits of CRJ courses or instructor's permission. Covers the historical development of juvenile justice in the US, jurisdiction issues, the adjudication process, role of the police and community agencies, and abuses in the system. 3 Cr. Every Semester.

CRJ 371 Introduction to Forensic Science (A). Provides a study of the work of the crime lab and the medical examiner. Examines methods of analysis of items commonly found at crime scenes such as: fingerprints, blood, illegal drugs, hairs, fibers, arson residues, bullets, etc. Covers procedures for processing the crime scene and safeguarding the evidence. 3 Cr. Fall.

CRJ 375 Forensic Law (B). Serves as an interdisciplinary course covering law, criminal justice, science and technological issues in the evidentiary arena. Provides broad-based assessment of scientific evidence as it relates to litigation theory, tactics and evidentiary proof. 3 Cr.

CRJ 431 Crime Prevention and Control (A). Prerequisites: Six credits of criminal justice courses or instructor's permission. CRJ Explores crime problems and the role of the criminal justice system in crime prevention, its funding, planning and evaluation. 3 Cr. Fall.

CRJ 434 Security Administration (B). Provides a comprehensive examination of the nature and problems of private and public security administration. Focuses on the issues of administration and the solutions, especially security technology necessary for successful management. 3 Cr. Spring.

CRJ 436 Computer Security (B). Examines the nature, problems, and programs to protect organizational information, especially electronically processed data and computer equipment. 3 Cr.

CRJ 451 International Criminal Justice Systems (A). Prerequisite: CRJ 101; corequisite: SOC 100. Compares and contrasts the criminal justice system of the United States with the systems of other countries. 3 Cr.

CRJ 465 Terrorism and the Criminal Justice System (A). Examines current terrorism, its origins and ideological bases, with particular attention to its relation to political institutions and the criminal justice response. 3 Cr.

CRJ 471 Research Methods in Criminal Justice (A). Prerequisites: Junior or senior status and successful completion of any one of the following courses: SOC 200, PSH 202, POL 300, MTH 243 or ECN 204. Familiarizes criminal justice majors with the development of data-gathering techniques, including scaling, questionnaire construction, sampling procedures, interviewing, secondary data analysis, and techniques of data processing using micro- and minicomputers. Also examines linear casual models as a tool in theory and research, research designs, central tendency, variation, and statistics for nominal and ordinal measures. 3 Cr. Every Semester.

CRJ 477 Family Violence (A). Prerequisite: SOC 100 and PSY 112. Focuses on the dynamics of family violence and the legal and social system response to the phenomenon. Explores and analyzes in-depth the scope and theoretical explanations of the issues of the various forms of family violence, e.g. spousal abuse, marital rape, elder abuse. 3 Cr.

CRJ 479 Victimology (A,W,Y). Cross-listed as WMS 479. Prerequisite: Junior or senior status. Develops an understanding of crime victimization, both direct and indirect. Focuses on street crime, social and political oppression, victimization of women, and victims of corporate deviance. Emphasizes theory and policy analysis. 3 Cr.
CRJ 481 Women and the Criminal Justice System (A,W,Y). Cross-listed as WMS 481. Prerequisite: Junior or senior status. Examines women's relationships with crime and the criminal justice system. Specifically provides a study of women and crime, victimization and occupational obstacles and opportunities. Develops students' understanding of how social, political and economic conditions affect these problems. 3 Cr.

CRJ 485 Issues in Juvenile Justice (A,I). Prerequisite: CRJ 343 or instructor's permission. Provides an in-depth analysis of 10-12 selected topics germane to the juvenile justice system. Includes topics such as child abuse and domestic violence, alternatives for the status offender, ethical issues, children's rights, right to treatment and right to refuse treatment, the politics of juvenile justice, and the court as a socio-legal institution. 3 Cr.

CRJ 489 Problems in Policing (A). Prerequisite: CRJ 203. Discusses specific problems of law enforcement and policing in contemporary American society. Emphasizes the development, nature and function of law enforcement as it relates to criminal justice. Covers topical issues and problems such as ethics, corruption, deadly force and civil liabilities. 3 Cr.

CRJ 490 Internship in Criminal Justice (B). Prerequisite: Internship coordinator's permission. Enables students to learn the basic operations of a criminal justice agency and participate in agency activity. Involves group discussion, weekly log, and final report. 1-6 Cr. Every Semester.

CRJ 491 Selected Topics in Criminal Justice (B). Enables students to develop an understanding of one topic concerning criminal justice, and learn to conduct research and analyze research findings on a given topic. May be repeated with chair's permission. 3 Cr.

CRJ 493 Restorative Justice (A). Examines philosophical and practical applications of Restorative Justice (RJ) concepts in addressing acts of crime. RJ is an orientation that views crime as a violation of interpersonal relationships. Stakeholders in a criminal act—victim, offender and community—participate in a process which establishes facts, identifies harm done and opportunities for healing. Addressing victim needs, offender accountability and community involvement provides a more substantive resolution to criminal acts. Students explore origins of this movement and RJ principles are contrasted with traditional criminal justice precepts. RJ models are taught through experiential learning modalities and existing programs are examined and evaluated. 3 Cr.

CRJ 494 Criminology (A). Prerequisite: CRJ 101, corequisite: SOC 100. Provides a review and critical analysis of the major criminological theories including the classical school; biological school; and psychological, sociological, and psychoanalytic orientations, including economic determinism. Considers various forms of criminality, as well as studies dealing with the frequency of crime in different places at different times. 3 Cr. Every Semester.

CRJ 495 Law and Evidence (B). Provides a comprehensive review of evidentiary principles, both common and statutory law and their impact on both civil and criminal process and how these principles impact the conduct of trial and litigation. Covers real and physical evidence, demonstrative substitution, hearsay and firsthand evidence, witness scope and qualification, as well as privilege principles. Interprets both federal and state rules. 3 Cr.

CRJ 499 Independent Studies in Criminal Justice (B). Prerequisite: Instructor's permission. To be defined in consultation with the instructor-sponsor and in accordance with the procedures of the Office of Academic Advisement prior to registration. May be repeated with chair's permission. 1-6 Cr. Every Semester.
Department of Dance

Hartwell Hall
(585) 395-2153

Chair and Professor: Darwin Prioleau, EdD, University of Massachusetts at Amherst; Professor: Jacqueline Davis, MA, Ohio State University; MA and MA Pre K-12 Advisor and Associate Professor: Juanita Suarez, PhD, Texas Woman's University; Associate Professors: James Hansen, MFA, University of Illinois at Urbana-Champaign; Clyde W. Morgan, BFA, Cleveland State University; Graduate Program Director, MFA Advisor and Associate Professor: Maura Keefe, PhD, University of California, Riverside; Assistant Professors: Mariah Maloney, MFA, Hollins University; Suzanne Oliver, PhD, University of Illinois at Urbana-Champaign; Visiting Professor and Undergraduate Program Director (Guest Artist): Bill Evans, MFA, University of Utah; Visiting Associate Professor and Arts for Children Director: Kevin Warner, MFA, Temple University; Professional Employees: Sandra Cain, MA, State University of Iowa; Gregory Ketchum, BS, The College at Brockport; Khalid Saleem; Christian Tucker, MA, Ball State University.

The College at Brockport is an accredited institutional member of the National Association of Schools of Dance, and offers the most broadly based dance degree programs in the SUNY system.

The department has some of the best dance facilities in the country, including its own fully equipped 300-seat proscenium dance theater, a 270 seat large-space studio theater, five studios, a body-conditioning lab, health pool, and computerized music and design studios. Faculty and professional staff are nationally and internationally recognized in their areas of expertise and are leaders in professional organizations such as CORD, NASD and NDEO.

Undergraduates with a strong foundation of dance training are able to participate in the program by auditioning to enroll as dance majors or minors in the BFA, BA or BS programs. Additionally, the department serves a large number of students through courses that fulfill General Education requirements.

The College at Brockport is recognized for its strong liberal arts education. Strengths of the program include professional-level instruction and numerous opportunities to present choreography in both formal and informal settings. Additionally, students regularly perform works created by faculty and guest artists. These experiences prepare students for a wide range of professional careers in dance or to continue their educations in graduate school. Through the faculty, guest artists, company residencies, DANSCORE, and SANKOFA African Dance and Drum Ensemble, students are also able to make important connections to the professional dance world. These creative opportunities combined with a range of courses in theory, history, production and technology provide a broad understanding of dance as a performing art.

Students also have the opportunity to study abroad. The Office of International Education provides information about dance programs in Jamaica, Ghana, England, Australia and other countries.

Programs in Dance

- BFA in Dance
- BA or BS in Dance (often coupled with a second major)
- BA or BS with a major in arts for children and specialty in dance
- Minor in Dance
- MA in Dance
- MFA in Dance
- MA with PreK–12 dance teacher certification

Required Auditions

All students wishing to major or minor in dance must pass one of three department auditions scheduled each year. Check the department Web site at www.brockport.edu/dance or contact the
Department of Dance at (585) 395-2153 for audition dates and information. Many non-major dance courses are open to students in all programs - no audition is required for this option.

Students may begin the dance major or minor as freshmen, sophomores or juniors. BA/BS dance major and dance minor requirements can be completed during two academic years. The BA/BS dance major requires 35 (out of 120) credits; up to 19 additional elective dance credits may be taken to meet degree requirements. Many dance majors also complete requirements for minors or a second major in another discipline.

The BFA dance major requires 85 credits in dance (out of 120) and emphasizes professional preparation for performance-related careers. It is a rigorous program that requires a high level of proficiency and commitment. Entering freshmen must complete at least one semester of BA/BS study before applying for the BFA. Transfer students can be reviewed for acceptance into the BFA program during the departmental entrance audition.

**Note to transfer students:** Transfer credits in dance are usually accepted as dance electives. A maximum of 18 credits may be transferred into the BA/BS dance major and 42 into the BFA. Transfer students may need 3-4 years to complete the BFA.

Careful planning of course sequences and consultation with faculty advisors is essential for all programs.

**Major Requirements**

**BA/BS in Dance**

**Dance Technique (12 credits)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>DNS 204 Dance Conditioning Lab</td>
<td>2</td>
</tr>
<tr>
<td>DNS 205 Dance Technique I</td>
<td>3</td>
</tr>
<tr>
<td><strong>AND a minimum of seven credits from the following:</strong></td>
<td></td>
</tr>
<tr>
<td>DNS 245 Dance Technique II</td>
<td>3</td>
</tr>
<tr>
<td>DNS 345 Dance Technique III</td>
<td>3</td>
</tr>
<tr>
<td>DNS 445 Dance Technique IV</td>
<td>3</td>
</tr>
<tr>
<td>DNS 253 Beginning Ballet</td>
<td>1-4</td>
</tr>
<tr>
<td>DNS 353 Intermediate Ballet</td>
<td>1-4</td>
</tr>
<tr>
<td>DNS 453 Advanced Ballet</td>
<td>1-4</td>
</tr>
<tr>
<td>DNS 330 African Dance II</td>
<td>3</td>
</tr>
<tr>
<td>DNS 433 African Dance III</td>
<td>3</td>
</tr>
<tr>
<td>DNS 454 Dance Styles</td>
<td>1-4</td>
</tr>
</tbody>
</table>

1Repeatable course numbers for ballet.
2A repeatable course number for musical theater, jazz, tap and special topics.
3A repeatable course number for dance technique.

**Choreography: (5 credits)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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<tbody>
<tr>
<td>DNS 208 Dance Production Practicum</td>
<td>0</td>
</tr>
<tr>
<td>DNS 364 Dance Improvisation</td>
<td>2</td>
</tr>
<tr>
<td>DNS 306 Beginning Dance Composition</td>
<td>3</td>
</tr>
</tbody>
</table>

**Theory: (12 credits)**

<table>
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<tr>
<th>Course</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>DNS 206 20th-century Dance: Issues and Styles</td>
<td>3</td>
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<tr>
<td><strong>OR</strong></td>
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<tr>
<td>DNS 316 History and Development of Dance</td>
<td>3</td>
</tr>
<tr>
<td>MUS 300 Music for Dance</td>
<td>3</td>
</tr>
<tr>
<td>MUS 420 Music Literature for Dance</td>
<td>3</td>
</tr>
<tr>
<td>DNS 305 Kinesiology</td>
<td>3</td>
</tr>
<tr>
<td><strong>OR</strong></td>
<td></td>
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<tr>
<td>DNS 375 Introduction to Laban Movement Analysis</td>
<td>3</td>
</tr>
</tbody>
</table>
Electives: (6 credits)
Upper-division dance electives selected by advisement

Total: 35

Grades of “C” or better are required in all 35 dance major credits.

Bachelor of Fine Arts in Dance (BFA)

Dance Technique (29 credits)
Must complete at least two semesters of DNS 445 Dance Technique IV and two semesters advanced-level study in one or two other forms.

<table>
<thead>
<tr>
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<tr>
<td>DNS 204</td>
<td>Dance Conditioning Lab</td>
<td>2</td>
</tr>
<tr>
<td>DNS 205</td>
<td>Dance Technique I</td>
<td>3</td>
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<tr>
<td>AND 24 credits selected from the following:</td>
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<tr>
<td>DNS 245</td>
<td>Dance Technique II</td>
<td>3</td>
</tr>
<tr>
<td>DNS 345</td>
<td>Dance Technique III</td>
<td>3</td>
</tr>
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<td>DNS 445</td>
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<tr>
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<tr>
<td>DNS 454</td>
<td>Dance Styles</td>
<td>1-4</td>
</tr>
</tbody>
</table>

1Repeatable course numbers for ballet.
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3A repeatable course number for dance technique.

Choreography and Performance (20 credits)

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>DNS 364</td>
<td>Dance Improvisation</td>
<td>2</td>
</tr>
<tr>
<td>DNS 306</td>
<td>Beginning Dance Composition</td>
<td>3</td>
</tr>
<tr>
<td>DNS 430</td>
<td>Intermediate Dance Composition</td>
<td>3</td>
</tr>
<tr>
<td>DNS 424</td>
<td>Dance Repertory and Literature I</td>
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<td>Advanced Composition</td>
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<tr>
<td>DNS 457</td>
<td>DANSCORE I-III</td>
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<tr>
<td>DNS 489-491</td>
<td>Sankofa I-III</td>
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Music for Dance: (6 credits)

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<tr>
<td>MUS 300</td>
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<td>MUS 420</td>
<td>Music Literature for Dance</td>
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History and Movement Theory: (15 credits)

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<tr>
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<td>20th-century Dance: Issues and Styles</td>
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<td>DNS 316</td>
<td>History and Development of Dance</td>
<td>3</td>
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<tr>
<td>DNS 375</td>
<td>Introduction to Laban Movement Analysis</td>
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<td>DNS 305</td>
<td>Kinesiology</td>
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<td>DNS 315</td>
<td>Dynamic Balance</td>
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<td>DNS 480</td>
<td>Dance Science and Injury Prevention</td>
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Dance Production: (3 credits)
DNS 207 Dance Production 3
DNS 208 Dance Production Practicum 0

Seminar: (3 credits)
DNS 495 Senior Seminar in Dance 3

Electives: (9 credits)
Any upper-division dance courses except Dance Technique III and Dance Technique IV.

Total: 85

Grades of “C” or better are required in all 85 dance major credits.
To ensure breadth of experience, required dance major courses cannot be used to fulfill General Education requirements except for one Fine Arts Knowledge Area course.

Minor in Dance
An audition is required for entrance into the dance minor program, and courses must include DNS 205 and DNS 245. The minor is 18 credits in dance selected with departmental advisement. Contact the department for information about the audition.

Interdisciplinary Arts for Children: Dance Specialty
Students seeking a major in interdisciplinary arts for children with a specialty in dance are required to complete a 48-credit program consisting of: (1) two seminar courses, IAC 280 Introduction to Related Arts for Children, and IAC 491 Seminar in Arts for Children; (2) a dance specialty of 21 credits; and (3) a 21-credit block which includes pedagogy courses in each of the other three arts and one approved elective. Students wishing to major in arts for children with a dance specialty should contact the Interdisciplinary Arts for Children Program for information about the major and the required entrance audition in dance. A minimum grade of “C” must be maintained in all required courses.
For detailed information and a comprehensive listing of courses required in this specialty area, refer to the section Arts for Children-Interdisciplinary Program in this catalog.

Department of Dance Courses

DNS 102 Traditional Dance Jazz (A,P). Studies selected traditional jazz dance forms and development of skills through studio experience. Covers artistic and educational uses of traditional jazz dances. Requires reading along with experiencing the recreational value of the traditional jazz dance styles. 3 Cr.

DNS 103 Traditional Dance Tap (A,P). Studies selected traditional tap dance forms and development of skills through studio experience. Covers the artistic and educational uses of traditional tap dances. Reading along with experiencing the recreational value of the traditional tap dance styles. 3 Cr.

DNS 104 Traditional Dance Ballet (A,P). Studies selected traditional ballet dance forms and development of skills through studio experience. Covers artistic and educational uses of traditional ballet. Requires reading along with experiencing the recreational value of the traditional ballet dance styles. 3 Cr.

DNS 105 Traditional Dance Afro-Caribbean (A,P). Studies selected traditional Afro-Caribbean dance forms and development of skills through studio experience. Covers the artistic and educational uses of traditional Afro-Caribbean dances. Requires reading along with experiencing the recreational value of the traditional Afro-Caribbean dance styles. 3 Cr.

DNS 106 Traditional Dance African (A,P). Studies selected traditional African dance forms and development of skills through studio experience. Covers the artistic and educational uses of traditional African dances. Requires reading, along with experiencing the recreational value of the traditional African dance styles. 3 Cr.
DNS 115 Introduction to Dance (A,P). Provides an introduction to the study of dance as an art form and its relation to other art forms, and considers the role of dance in history and society. Includes studio classes in elementary modern dance technique, fundamentals of movement, elements of rhythm and spatial awareness, simple composition and improvisational dance studies. Provides the non-major with an awareness of the aesthetics and creative processes of dance. 3 Cr. Every Semester.

DNS 125 Looking At Dance (A,F). Provides a survey of dance forms through lecture, literature, film and live performance. Addresses contributions to the art of dance by major choreographers, dancers and others throughout the world. 3 Cr.

DNS 200 Traditional Dance Styles (A,P). Provides a study of selected traditional dance forms and development of skills through studio experience. Includes traditional dance styles such as folk and country dance, African, Afro-Caribbean dance, jazz, tap and ballet. Covers the artistic and educational uses of traditional dances, while allowing students to experience the recreational value of traditional dance styles. Can be repeated, but only three credits may be used toward the 120 credits required for graduation. 3 Cr.

DNS 204 Dance Conditioning Laboratory (B). Explores conditioning methods and materials/equipment for dancers including discussions of wellness issues (i.e., stress management, diet, rest, etc.). Introduces students to the Conditioning Studio and given conditioning programs tailored to their needs. Focuses on providing information and dance-specific materials appropriate for independent use. 2 Cr.

DNS 205 Dance Technique I (A). Prerequisite: Audition prior to enrollment. Provides an introduction to the Department of Dance and to the many aspects of the dance profession. Covers modern dance technique, improvisation, and dance composition assignments. Discusses pertinent topics in dance. Prerequisite to all other dance major courses. Includes studies in dance science and somatics. (Must pass audition prior to enrollment.) 3 Cr. Every Semester.

DNS 206 20th-Century Dance: Issues and Styles (A,F,FW,Y). Provides for the study of the origin and evolution of 20th-century dance; important dance artists and their work; contemporary forms, trends and styles; a survey of dance literature through film; and video and written materials. 3 Cr. Every Semester.

DNS 207 Dance Production (B). Covers all aspects of dance production, including light, stage management, costume, scenery and properties, and dance design as an art. Requires extensive evening crew work. While enrolled in DNS 207, students may not enroll in evening classes or perform in major Hartwell productions without instructor's permission. 3 Cr. Fall.

DNS 208 Dance Production Practicum (B). Entails a practicum experience that provides an opportunity to develop an understanding of the dance production process. Students registered for DNS 208 should not take night classes or perform in dance concerts. 0 Cr. Spring.

DNS 225 Movement and Self Awareness (A,P). Enables students to improve movement habits and increase self-awareness through effective and efficient movement. Develops awareness of postural and movement characteristics, and observational skills for everyday movement and dance. Utilizes both movement and touch. 3 Cr. Every Semester.

DNS 232 African Music and Drumming for Dance (A,P). Cross-listed as AAS 232. Studies selected traditional musical instruments for dance accompaniment; and develops performance skills and techniques through studio and live performance applications. Explores traditional styles and their social and artistic needs for formal religious and recreational application. Also explores modern educational and cultural usages in African schools and colleges. 3 Cr. Every Semester.

DNS 245 Dance Technique II (A). Prerequisite: DNS 205 and instructor's permission. Beginning-level course to train the dancer to respond to a broad range of movement demands. Focuses primarily on modern technique. Placement in a technique level is determined by previous training and skill rather than academic standing. Includes studies in dance science and somatics. 3 Cr. Every Semester.

DNS 253 Beginning Ballet (A). Prerequisite: DNS 205 or instructor's permission. Provides an introduction to the fundamentals of classical ballet with an emphasis on technique, body alignment and placement exercises performed at barre and center floor work. Incorporates stretch and strengthening techniques. Emphasizes ballet vocabulary and its application. 1-4 Cr.

DNS 302 Ballroom and Social Dance. Survey of dances popular in Western culture: folk/ethnic, ballroom/couple and country/square. Emphasis given to styling and movement characteristics, rhythmic structures, historical backgrounds, and related folkloristic contexts. Develops skills in performing basic dance components such as polka, waltz, shottische, two step, foxtrot, rumba, tango, lindy, etc. Opportunities given to put techniques into practice via required field trips. 3 Cr.

DNS 305 Kinesiology for Dancers (A). Prerequisites: DNS 205 and BIO 221. Explores the mechanical, physiological and anatomical require-
ments of specific dance techniques; limitation of the body in performing these techniques; and methods of safely extending the body’s capacity for performance. 3 Cr.

DNS 306 Beginning Dance Composition (A). Prerequisite: DNS 205, DNS 364 and MUS 300. Allows for beginning work in composition. Requires students to choreograph short studies and short solo dances as they learn the various elements of composition. 3 Cr.

DNS 313 Movement for Theater (A). Develops dance skills as related to basic dance forms commonly used in theater productions. Allows for the execution of basic dance forms such as jazz, tap, ballet and modern dance for the theater; and provides studies in techniques of movement with emphasis on the performance aspect. 3 Cr.

DNS 315 Dynamic Balance: Movement Theories (A). Prerequisite or corequisite: DNS 305 and intermediate or advanced technique. Allows for the performance of skills from the work of Irmgard Bartienieff, F. M. Alexander, and others; relating of kinesiological principles to the improvement of human movement patterns; significance of the mind/body relationship; and application of skills and principles to one’s own performance. 3 Cr.

DNS 316 History and Development of Dance (A,W,Y). Surveys the history of dance as a cultural medium from prehistoric times to the early years of the 20th century, and the roles of women and men in dance performance, choreography, literature and education. Emphasizes dance in Western cultures, non-Western influences and African-American dance. Has a strong writing component. 3 Cr.

DNS 330 African Dance II (A). Cross-listed as AAS 330. Prerequisite: DNS 106 or instructor’s permission. Provides a more detailed examination of the content of DNS 106. Also provides background of the African dance with historical linkages with dance movement forms within the Afro-American, Caribbean and Latin-American setting; a general survey of the material of the dance; the structure and design of African dances in relation to ceremonial and recreational forms, e.g. linear circular forms, massed and team dances; and social organization of the dance. 3 Cr.

DNS 333 African Music and Drumming for Dance II (A). Prerequisite: DNS 232, AAS 232 or instructor’s permission. Studies selected advanced traditional musical instruments for dance accompaniment; and develops advanced performance skills and techniques through studio and live performance applications. Explores traditional styles and their social and artistic needs for formal religious and recreational application. Also explores modern educational and cultural usages in African schools and colleges. 3 Cr.

DNS 339 Survey of Tap Dance II (A). Prerequisites: DNS 103, or instructor’s permission. Covers complex rhythmic and technical skills; familiarity with periods, personalities and specific contributions involved in the development of tap dance; notation of dance steps in terms of vocabulary and rhythmic components; and the development of technique that focuses on rapidity of movement articulation and complex sequential patterns of movement, for intermediate/advanced dancers. 3 Cr.

DNS 345 Dance Technique III (A). Prerequisite: Instructor’s permission. Entails a series of courses on the intermediate level to train the dancer’s body to respond to a broad range of movement demands. Focuses primarily on modern dance and ballet technique. Placement in a particular section is determined by previous training and skill rather than academic standing. Includes studies in dance science and somatics. 3 Cr.

DNS 353 Intermediate Ballet (A). Prerequisite: DNS 253. Provides a continuation of the study of classical ballet at the intermediate level in a technique class consisting of full barre and center floor work. Incorporates stretch and strengthening exercises. 1-4 Cr.

DNS 364 Dance Improvisation (A). Prerequisites: DNS 205 or MUS 300 and MUS 420. Provides beginning dance and movement improvisation as a compositional and performance technique, and covers historical background and relationship to other arts, and develops skill in improvising dance movement and structuring dance improvisations. 2 Cr. Spring.

DNS 371 Modern Dance Technique I (B). Provides an introduction to contemporary modern dance technique and theoretical background including an appreciation of historical and aesthetic perspectives of modern dance and movement vocabulary. Focuses on acquisition of basic dance skills, conditioning of the body and increased movement body awareness in the studio. Requires concert attendance and discussion of contemporary dance in relation to other dance and art forms. 3 Cr.

DNS 372 Modern Dance Technique II (B). Prerequisite: DNS 371 or equivalent. Continues DNS 371 for students not majoring in dance. Develops motor skills in modern dance, dance vocabulary, body awareness, study of dynamics and rhythm. Emphasizes modern dance technique, but also employs movement exploration, improvisation, basic composition, concert attendance, dance films and discussion. 3 Cr.

DNS 375 Introduction to Laban Movement Analysis (A). Prerequisites: DNS 205 or instructor’s permission. Provides an introduction to Rudolf
Laban's system of movement analysis, with an emphasis on qualitative description of movement. Sometimes called Effort/Shape, Laban Movement Analysis, provides a structure for intellectual and physical understanding of the body in motion. Includes reading, observations of live and recorded movement, lectures, and movement activities. 3 Cr. Spring.

DNS 399 Independent Study (B). Prerequisite: DNS 205. Designed individually through consultation between the student and instructor to suit the student's needs and interests and the special competence of the instructor. Additional requirements may be established by the department. 1-3 Cr.

DNS 400 Special Topics (B). Addresses in depth a selected study topic not covered in other courses. Is repeatable with different topic titles. Additional information may be obtained from the department. 1-4 Cr.

DNS 424 Dance Repertory I (A). Prerequisite: Instructor's permission. Enables students to become familiar with a selected body of choreographed works through an in-depth study of the dances; and perform a learned repertory for public concerts. 3 Cr.

DNS 425 Dance Repertory II (A). Prerequisite: Instructor's permission. Enables students to become familiar with a selected body of more advanced choreographed works through an in-depth study of the dances; and perform a learned repertory for public concerts. 3 Cr.

DNS 427 Dance Performance Techniques (A). Prerequisite: Advanced technical work; and at least intermediate or advanced technique. Develops performance skills and awareness of the many components involved in the artistry of the performing dancer, and covers various techniques and aesthetics of performance. 3 Cr.

DNS 430 Intermediate Dance Composition (A). Prerequisites: DNS 205, DNS 306 and MUS 420. Allows students to further develop skills learned in Beginning Composition, with an emphasis on developing choreographic skills for duet and small groups. 3 Cr. Spring.

DNS 431 Advanced Dance Composition (A). Requires students to choreograph two fully developed dance works with an emphasis on choreographic structure, the logistics of rehearsal scheduling and essential production elements. 3 Cr. Fall.

DNS 433 African Dance III (A). Cross-listed as AAS 433. Prerequisites: DNS 330 or instructor's permission. Covers advanced dance for recreation, and ceremonial dance, including festival, war, court and ritual forms. Enables students to develop a mental, emotional and aesthetic awareness of the performance of an African dance. Examines the role of the African dance in the service of society in campus and off-campus performances. 3 Cr.

DNS 437 Modern Jazz II (B). Prerequisite: DNS 102 or instructor's permission. Covers basic jazz styles, rhythms, artists and dances; jazz idiom; and performing style and definition of movement. Enables students to perceive and coordinate movement quickly in combined steps, and improvise lengthy jazz sequences in the jazz idiom. Required reading along with exploration of jazz from its historical perspective. 3 Cr.

DNS 440 Summer Dance Workshop (A). Entails Summer Arts Festival workshops with guest artists. Includes topics such as dance technique, composition, repertory or other special topics. See SummerSession bulletins for complete descriptions. 1-6 Cr.

DNS 445 -450 Dance Technique IV (A). Prerequisite: Instructor's permission. Entails a series of courses on the advanced level designed to train the dancer's body to respond to a broad range of movement demands. Focuses on modern dance and ballet technique. Placement in a particular section is determined by previous training and skill rather than academic standing. Includes studies in dance science and somatics. 3 Cr.

DNS 452 Somatics: Body/Mind Integrity (A). Covers movement re-education for reducing stress and pain, improving posture, balance, mobility and self-image. Also covers processes of somatics derived from Feldenkrais Awareness Through Movement lessons (ATM). Entails yoga, body/mind centering, dance movement improvisations, and hands-on body work. 3 Cr.

DNS 453 Advanced Ballet (A). Prerequisite: DNS 353 or instructor's permission. For the advanced-intermediate to advanced-level ballet student. Consists of a ballet technique class incorporating barre and center floor work, adagio, petite allegro, and grande allegro. Expects students to develop and perform the skills and style at the designated level. 1-4 Cr.

DNS 454 Studies in Major Dance Styles (B). Prerequisite: DNS 205 or instructor's permission. Provides a concentrated study in a specific dance form (e.g. jazz, tap, musical theater) or a specific modern dance style (e.g. Martha Graham, Doris Humphrey, Merce Cunningham, Garth Fagan). May be repeated if topics are different. 1-4 Cr. Every Semester.

DNS 457 Performance (A). Prerequisite: Instructor's permission. Through modern dance performance, provides an opportunity for study of performance to intermediate and advanced dance students. 1-4 Cr.
DNS 460 Foreign Studies in Dance (A). Prerequisite: Junior or senior status and departmental approval. Explores dance and its uses and forms in another culture. Requires dance performance activities and academic study associated with dance at an institution in another country. The Department of Dance has exchange programs with England, Ghana, and Jamaica. 1-15 Cr. Every Semester.

DNS 461 Labanotation I (A). Prerequisite: DNS 205. This course presents the basic principles of the Laban method of movement notation. The student develops skills in perceiving and analyzing movement, and in notating and reading back simple movement patterns. 3 Cr.

DNS 462 Lighting for Dance (B). Covers lighting design, techniques, lighting production; relationships among designer, choreographer and other production personnel; and stage lighting as a spatial and temporal art form. Requires students to conceive, design and supervise lighting of a major dance concert. 3 Cr.

DNS 463 Advanced Production and Design (B). Prerequisite: DNS 207. Concentrates on theatrical elements of dance production and design. Allows students to research, render, and in some cases, execute studio design of scenery, costumes, properties and make-up salient to dance. 3 Cr.

DNS 468 Sankofa Dance Performance Lab (A). Prerequisite: DNS 332. An advanced course in Afro-Caribbean dance designed to prepare students interested in performing and teaching the dances. Techniques of performance are stressed. 3 Cr. Every Semester.

DNS 483 Children’s Dance I (A). Prerequisites: DNS 115 or DNS 205. Covers basic movement skills applied to creative dance with children, especially in the classroom; pertinent resources for children’s dances; and how to work effectively with dancers and dance specialists. Is an evening class. 3 Cr. Fall.

DNS 484 Children’s Dance II (B). Prerequisite: Instructor’s permission. Provides a basic orientation to teaching creative dance to young children; and covers the use of various approaches, such as problem solving, teacher-directed method, and invention. Allows students to develop curricular materials and evaluate procedures. Conducted with children during an after-school program. 3 Cr. Spring.

DNS 488 Sankofa Dance Performance Lab (A). Prerequisite: DNS 332. An advanced course in Afro-Caribbean dance designed to prepare students interested in performing and teaching the dances. Techniques of performance are stressed. 3 Cr. Every Semester.

DNS 489 -491 Sankofa I-III (A). Prerequisite: Instructor’s permission. Through an African dance and music performance ensemble, provides an opportunity for study, performance and touring for intermediate and advanced students of African dance. 3 Cr. Every Semester.

DNS 495 Senior Seminar in Dance (A). Prerequisite: Junior or senior status as dance major. Prepares students for transition from student life to the professional world. Includes self-evaluation, finishing unrealized goals as a student at The College at Brockport, exploring career options, writing a résumé, building a portfolio and pursuing job interviews. Involves discussions about the artist in society, the business of dance, companies and careers and the funding and promotion of dance. 3 Cr. Fall.

DNS 499 Independent Study (A). Designed individually through consultation between the student and instructor to suit student’s needs and interests and the special competence of the instructor; and in accordance with College policy. Additional requirements may be established by the department. 1-6 Cr.
DEPARTMENT OF THE EARTH SCIENCES

317 Lennon Hall
(585) 395-2636, FAX (585) 395-2416
www.esc.brockport.edu
E-mail: earthsci@esc.brockport.edu

Chair and Associate Professor: Scott M. Rochette, PhD, Saint Louis University; Professors: Whitney J. Autin, PhD, Louisiana State University; Judy A. Massare, PhD, The Johns Hopkins University; Associate Professors: Jose A. Maliekal, PhD, University of Hawaii; Mark R. Noll, PhD, University of Delaware; Robert Weinbeck, PhD, Iowa State University; James A. Zollweg, PhD, Cornell University; Assistant Professors: Gustavo Pereira, PhD, Colorado State University; Paul L. Richards, PhD, The Pennsylvania State University.

Directly or indirectly, beneficially or adversely, humanity affects and is affected by the physical processes occurring within the earth system, which encompasses the air we breathe, the water we drink, and the land that sustains us. The sphere of knowledge known as the earth sciences includes the study of all physical aspects of the earth system, including how its composition, properties, resources and processes change over time. By applying physical, chemical, mathematical and biological principles, earth scientists strive to enhance the understanding of the earth system so that humanity is better prepared to properly use its resources, and anticipate, detect, and mitigate the adverse impacts of its processes.

Students who major in geology, meteorology or water resources focus their study on the geologic, atmospheric, or hydrologic components of the earth's environment. They also study the interrelationships between these environments, enabling them to expand the breadth of their expertise. In contrast, students who major in earth science acquire a broadly based and integrated understanding of the knowledge and methodologies of geology, meteorology, and hydrology. Regardless of the academic major, the departmental curricula render science accessible, relevant, and meaningful to students. Students are also afforded the opportunity to explore and discover the processes and interactions occurring within the earth system through research with faculty assistance.

Academic majors: earth science, geology, meteorology and water resources.

Academic minors: earth science, geology, meteorology, water resources, and interdisciplinary communication meteorology.

Major in Geology

Geology majors must earn a minimum of 42 credits in required core courses and complete two semesters each of physics, calculus and chemistry. This major offers sound training in the study of the earth and its resources, and equips the student for graduate studies in geochemistry, petroleum exploration, paleontology, hydrogeology, ground water, environmental geology, or sedimentology/stratigraphy. It also provides a strong background in geology for those who seek employment at the bachelor's level, e.g., as a laboratory or environmental technician, in regulatory agencies, and as field geologists.

Required Core:  

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<td>GEL 302</td>
<td>Historical Geology</td>
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<tr>
<td>GEL 306</td>
<td>Paleontology</td>
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<tr>
<td>GEL 312</td>
<td>Mineral Science</td>
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<tr>
<td>GEL 408</td>
<td>Structural Geology</td>
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<tr>
<td>GEL 411</td>
<td>Stratigraphy and Sedimentology</td>
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<td>ESC 350</td>
<td>Computational Methods in the Field Sciences</td>
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<td>Writing in the Earth Sciences</td>
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<td>ESC 493</td>
<td>Seminar on Earth Science Problems</td>
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Total: 42
**Designated Electives:**
- GEL 415 Geomorphology 4
- GEL 457 Geochemistry 4
- GEL 462 Groundwater 4
- ESC 455 Introduction to Soils Science 3

**Required Corequisite Courses:**
- CHM 205–206 College Chemistry I and II with Lab 8
- MTH 201–201 Calculus I and II 8
- PHS 201–202 College Physics I and II with Lab 8

**Total:** 24

**Note:** ESC and GEL courses other than the designated electives may NOT be taken as credit toward the geology major without written departmental approval. To make normal progress toward the degree, GEL 201 and 302, and ESC 350 and 391, physics, calculus and college chemistry should be completed before entering the junior year. ESC 493 should be taken in the senior year. Most required courses are taught once every two years.

A career as a professional geologist requires knowledge of all the natural sciences. Students who intend to pursue graduate studies should consider a minor in chemistry, physics, mathematics, or biology, depending on their specific field of interest within geology. Recommended supporting courses include:
- ESC 200 Introduction to Oceanography
- ESC 230 Introduction to Geographic Information Systems (GIS)
- ESC 351 Lab Experiences in Scientific Programming
- ESC 412 Hydrology
- ESC 418 Watershed Science
- ESC 431 Environmental Applications of GIS
- CHM 303 Analytic Chemistry
- CHM 305 Organic Chemistry I
- BIO 436 Water Quality Analysis
- BIO 419 Limnology
- MTH 203 Calculus III

**Minor in Geology**
Eighteen credits are required and must include GEL 201 Introduction to Physical Geology, and GEL 302 Historical Geology, and other courses as advised.

**Major in Meteorology**
Meteorology majors must earn a minimum of 43 credits in required core courses, complete one year of college-level physics with lab, two semesters of calculus, differential equations and chemistry. Additional supporting work in the sciences and mathematics is strongly recommended.

This major prepares students for careers in weather forecasting, atmospheric research, environmental consulting and air quality management. The strong physical science orientation of the program allows students to compete in related fields, such as environmental and computer science, hydrology and alternative energy utilization. The major meets the federal guidelines for meteorologists, enabling graduates to begin careers in federal, state and private employment.

**Required Core Courses:**
- ESC 211 Introduction to Meteorology 4
- ESC 311 Synoptic Meteorology 4
- ESC 312 Weather Forecasting 4
- ESC 391 Writing in the Earth Sciences 1
- ESC 350 Computational Methods in the Field Sciences 3
- ESC 351 Laboratory Experience in Scientific Programming 1

**Total:** 24
OR
ESC 313–314 Environmental Climatology and Lab 4
ESC 415 Physical Meteorology 3
ESC 416 Thermodynamics and the Boundary Layer 3
ESC 417 Dynamic Meteorology 3
ESC 420 Atmospheric Sensing Methods 3
ESC 490 Weather Briefing 1
ESC 493 Seminar on Earth Science Problems 2
Designated electives by advisement 6

Total: 43

Designated Electives:
ESC 327 Broadcast Meteorology 3
ESC 421 Air Pollution Meteorology 3
ESC 412 Hydrology with Laboratory 4
ESC 432 Tropical Meteorology 3
ESC 452 Mesoscale Meteorology 3
ESC 460 Meteorology Internship 1-3
ESC 462 Hydrometeorology 4
ESC 399/499 Independent Study 1-3

Required Corequisite Courses:
MTH 201–202 Calculus I, II 8
MTH 255 Differential Equations 3
PHS 235-240 Physics I, II 8
CHM 205 Chemistry I 4

Total: 23

ESC 350 and 391 should be taken by the end of the sophomore year.
ESC 493 should be taken in the senior year.

NOTE: Most required courses are offered once every two years.

Additional mathematics, computer science, or science courses are recommended, depending on individual goals. In some cases, these may be applied toward the major with written departmental approval. Recommended supporting courses, outside of meteorology, include:

CHM 206 College Chemistry II
CSC 203 Fundamentals of Computer Science I
CSC 205 Fundamentals of Computer Science II
MTH 203 Calculus III
MTH 281 Discrete Mathematics I
MTH 346 Probability and Statistics I
MTH 456 Advanced Differential Equations
MTH 471 Numerical Analysis
PHS 307 Physics III
PHS 332 Mathematical Methods of Physics
PHS 353 Classical Mechanics

Minor in Meteorology
Eighteen credits are required, to be selected from the ESC courses required for the meteorology major; includes ESC 211 (or its equivalent) and 311.
**Minor in Communication Meteorology**

Information on the interdisciplinary communication meteorology minor is found following the communication course descriptions.

**Major in Water Resources**

Water resources majors must earn a minimum of 43 credits in required core courses. Additional requirements are two semesters each of calculus, college chemistry with lab, and college physics with lab.

This major prepares students for careers in hydrology, resource management, and pollution control; the course of study includes most courses recommended for federal employment as a hydrologist. The major is offered to meet the growing demand for hydrologists and other water resources professionals by federal, state and local government agencies; private sector environmental and consulting firms; and industrial and educational institutions.

### Required Core Courses:

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<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tr>
<td>ESC 211</td>
<td>Introduction to Meteorology</td>
<td>4</td>
</tr>
<tr>
<td>ESC 350</td>
<td>Computational Methods in the Field Sciences</td>
<td>3</td>
</tr>
<tr>
<td>ESC 351</td>
<td>Laboratory Experience in Scientific Programming</td>
<td>1</td>
</tr>
<tr>
<td>ESC 391</td>
<td>Writing in the Earth Sciences</td>
<td>1</td>
</tr>
<tr>
<td>ESC 412</td>
<td>Hydrology</td>
<td>4</td>
</tr>
<tr>
<td>ESC 418</td>
<td>Watershed Sciences</td>
<td>3</td>
</tr>
<tr>
<td>ESC 493</td>
<td>Seminar in Earth Science Problems</td>
<td>2</td>
</tr>
<tr>
<td>GEL 201</td>
<td>Introduction to Physical Geology</td>
<td>4</td>
</tr>
<tr>
<td>GEL 462</td>
<td>Groundwater</td>
<td>4</td>
</tr>
</tbody>
</table>

**Designated electives by advisement:**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ESC 311</td>
<td>Synoptic Meteorology I</td>
<td>4</td>
</tr>
<tr>
<td>ESC 312</td>
<td>Synoptic Meteorology II</td>
<td>4</td>
</tr>
<tr>
<td>ESC 313-314</td>
<td>Environmental Climatology and Lab</td>
<td>4</td>
</tr>
<tr>
<td>ESC 325</td>
<td>Wetlands Systems</td>
<td>3</td>
</tr>
<tr>
<td>ESC 420</td>
<td>Radar and Satellite Meteorology</td>
<td>4</td>
</tr>
<tr>
<td>ESC 431</td>
<td>Environmental Applications of GIS</td>
<td>3</td>
</tr>
<tr>
<td>ESC 455</td>
<td>Introduction to Soils Science</td>
<td>3</td>
</tr>
<tr>
<td>ESC 462</td>
<td>Hydrometeorology</td>
<td>4</td>
</tr>
<tr>
<td>GEL 415</td>
<td>Geomorphology</td>
<td>4</td>
</tr>
<tr>
<td>GEL 457</td>
<td>Geochemistry</td>
<td>4</td>
</tr>
<tr>
<td>ENV 419</td>
<td>Limnology</td>
<td>3</td>
</tr>
<tr>
<td>ENV 436</td>
<td>Water Quality Analysis</td>
<td>4</td>
</tr>
</tbody>
</table>

**Total: 43**

### Required Corequisite Courses:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MTH 201–202</td>
<td>Calculus I, II</td>
<td>6</td>
</tr>
<tr>
<td>CHM 205–206</td>
<td>Chemistry I, II</td>
<td>8</td>
</tr>
<tr>
<td>PHS 235-240</td>
<td>Physics I, II</td>
<td>8</td>
</tr>
</tbody>
</table>

**Total: 22**

ESC 350, ESC 391, physics, calculus and college chemistry, should be taken by the end of the sophomore year.

ESC 493 should be taken in the senior year.

Be aware that most required courses are offered once every two years.
The study of hydrology and water resources depends strongly on skills and knowledge from physics, chemistry, geology, meteorology, mathematics and computer science. A professional career in water resources is supported by additional coursework in these disciplines. Recommended supporting courses outside of water resources include:

- BIO 303: Ecology
- BIO 422: Pollution Biology
- CHM 303: Analytical Chemistry I
- CHM 305–306: Organic Chemistry I and II
- ESC 200: Introduction to Oceanography
- GEL 343: Environmental Geology
- GEL 411: Sedimentology and Stratigraphy
- MTH 455: Differential Equations
- PLS 466: Environmental Politics

**Minor in Water Resources**

Nineteen credits are required and must include ESC 211, ESC 412, ESC 418 and GEL 201. Select one elective course from the following: GEL 462, GEL 457 or GEL 415.

**Major in Earth Science**

Earth science majors must earn a minimum of 32 core and elective credits and an additional 19 credits in related sciences and mathematics. The core and elective courses that constitute the curriculum of this interdisciplinary major embody the knowledge base and methodologies of geology (solid earth and its resources), meteorology (the atmosphere and its movement), and hydrology (water and its cycling through the environment). As such, this major offers a flexible and broadly based program of study that is well suited for students who are preparing for school teaching (elementary or secondary) or planning for a career in environmental regulation, resource management or park service. By supplementing the major-related coursework with additional electives, or an appropriate minor, a student may structure her/his study toward a special interest area, such as journalism, technical writing business, or graduate study in geography, resource management, urban planning, or museum science.

**Required Core (17 Credits):**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEL 201</td>
<td>Introduction to Physical Geology</td>
<td>4</td>
</tr>
<tr>
<td>ESC 200</td>
<td>Introduction to Oceanography</td>
<td>3</td>
</tr>
<tr>
<td>ESC 211</td>
<td>Introduction to Meteorology</td>
<td>4</td>
</tr>
<tr>
<td>ESC 350</td>
<td>Computational Methods in the Field Sciences</td>
<td>3</td>
</tr>
<tr>
<td>ESC 391</td>
<td>Writing in the Earth Sciences</td>
<td>1</td>
</tr>
<tr>
<td>ESC 493</td>
<td>Seminar in Earth Science Problems</td>
<td>2</td>
</tr>
</tbody>
</table>

**Geology Elective (choose one of the following):**

- GEL 302: Historical Geology (4)
- GEL 312: Mineral Science (4)
- GEL 363: Environmental Geology (3)

**Meteorology Elective (choose one of the following):**

- ESC 313: Environmental Climatology (3)
- ESC 420: Atmospheric Sensing Methods (3)
- ESC 421: Air Pollution (3)

**Water Resources Elective (choose one of the following):**

- ESC 325: Wetland Systems (3)
- ESC 412: Hydrology (4)
- GEL 462: Groundwater (4)

**General Electives:**

Chosen from ESC/GEL courses with advisement

**ESC/GEL Minimum Total:** 32
Science Corequisites (8 Credits):

CHM 205-206 College Chemistry I and II    8
MTH 201 Calculus I                     4
PHS 205-210 Introduction to Physics I and II  8
OR
PHS 235-240 Physics I and II

Total: 20

Please note: ESC 350 and 391 should be taken by the end of the sophomore year. ESC 493 should be taken in the senior year.

Many electives are offered only once every two years.

An upper-division course from the major requirements corresponding to that elective area may be substituted with written permission, i.e. another course required for the geology major may be used in place of GEL 302, 363, or 312.

Minor in Earth Science

Eighteen credits are required and must include ESC 200, ESC 211, and GEL 201.

Policy on Majors and Minors in the Earth Sciences

Majors within the Department of the Earth Sciences are strongly encouraged to have second majors or major/minor combinations with chemistry, physics, biology, environmental science, mathematics or computer sciences rather than within the department. Upper division courses applied towards fulfilling the major cannot also be applied to a minor within the department. Where the same courses are required, only the lower division courses can apply to the minor. Upper division credit for the minor must be in addition to courses applied to the major.

Earth Sciences Courses

ESC 102 Elements of Geography (A). Covers locating, describing, and explaining physical processes and features of the earth; and relating them to cultural, economic, and political activities of people. Includes location and characterization of places; human-environment interactions; and unifying features of regions. Seeks to understand how earth processes and features affect and are affected by human activities. Not acceptable credit toward any major or minor offered through the Department of the Earth Sciences. 3 Cr. Every Semester.

ESC 110 Weather (A,N). An introduction to scientific inquiry in atmospheric investigations, emphasizing weather study as it demonstrates relationships between directly-observed weather and weather systems as depicted on weather maps. Lecture only. Students taking this course may not take ESC 211 for credit. 3 Cr. Spring.

ESC 195 Natural Disasters (A,D,L). Examines the causes, effects, and options available to respond to and potentially mitigate the effects of natural disasters such as earthquakes, volcanic eruptions, tsunami, landslides, severe weather, and floods. Differing impacts in developing and industrialized countries will be discussed. Not acceptable toward any major or minor offered through the Department of Earth Sciences. 4 Cr. Every Semester.

ESC 200 Introduction to Oceanography (A,N). Covers fundamental knowledge concerning the oceans, techniques and instruments utilized in the study of the oceans, and environmental problems relating to oceans and their resources. Lecture only. 3 Cr.

ESC 211 Introduction to Meteorology (A,L). Introduces students to the structure and composition of the atmosphere, energy and temperature, and the formation of clouds, rain, and hail. Also enables students to explore atmospheric forces and winds on local and global scales, middle-latitude cyclones, hurricanes, thunderstorms, tornadoes and other severe weather phenomena. Climate change, air pollution, and atmospheric optical phenomena are also examined. Includes a laboratory component where students learn to analyze weather concepts, data, and maps to reinforce some of the topics learned in lecture. Students taking this course may not take ESC 110 for credit. 4 Cr. Every Semester.

ESC 212 Introduction to Meteorology Laboratory (A). A laboratory component where students learn to analyze weather concepts, data, and maps. 1 Cr. Every Semester.

ESC 230 Geographic Information Systems (A). Prerequisite: PC-computer literacy and GEL 201 or ESC 211, 350, and 391. Provides an introduction
to the use of computer-geographic information systems (GIS). Examines the geographic and information data-processing methods associated with earth systems sciences studies. Covers geographic data selection analysis and presentation using spatial data-processing hardware and software techniques. Requires use of earth systems data to develop an individual hands-on study application. 3 Cr. Fall.

ESC 311 Synoptic Meteorology I (A). Prerequisite: ESC 211 or equivalent; co-requisite MTH 201. Qualitative and quantitative evaluation of mid-latitude weather systems via conceptual models and theoretical ideas. Covers meteorological data and analysis products, scales of atmospheric motion, kinematic properties of the wind field, fronts and frontogenesis, and extratropical cyclones and cyclogenesis. Lab emphasizes subjective/objective analysis and application of meteorological data. 4 Cr. Fall.

ESC 312 Synoptic Meteorology II (A). Prerequisite: ESC 311 and MTH 201. Application of qualitative and theoretical concepts to the prediction of mid-latitude weather systems. Covers geostrophic and ageostrophic winds, upper-level jet streak dynamics, methods of computing vertical motion, quasi-geostrophic theory, quantitative evaluation and verification methods, and numerical weather prediction products. Lab emphasizes real-time diagnosis and prediction of local, regional, and large-scale weather systems. 4 Cr. Fall.

ESC 313 Environmental Climatology (A). Prerequisite: ESC 211 or BIO 303. Discusses the physical, chemical, and biological factors regulating the climate of the earth. Covers radiation and energy balance, climatic elements, atmospheric and oceanic circulations, natural and anthropogenic climate change and variations. 3 Cr. Spring.

ESC 314 Climatology Laboratory (A). Prerequisite or corequisite: ESC 313. Covers principles and analytical techniques used to study global, regional, and local climate. 1 Cr. Spring.

ESC 319 Biological Oceanography (A). Cross-listed as ENV 319. Prerequisite: ESC 200 or instructor's permission. Review of the ocean's physical, geological and chemical properties followed by study of the classification, biology and life history of marine animals and plants. Concludes with ecology of selected marine ecosystems such as intertidal, deep sea and coral reef. 3 Cr. As Needed.

ESC 325 Wetland Systems (A). Prerequisites: One of the following: BIO 202, GEL 201, ESC 211, ENV 400, or ESC 364. Covers the soils, plants, and hydrology that are characteristic of wetland systems; the history of attitudes towards and use of these areas; methods of classification of wetlands; legal and regulatory issues; management and preservation strategies; and design and use of constructed wetlands. 3 Cr. Fall.

ESC 327 Broadcast Meteorology (A). Learn: 1) how to improve weather presentation skills by developing a plain language weather presentation and forecast using the National Weather Service Forecast Discussion and Model Output products; 2) the common meteorological terminology and concepts used in weather broadcasts; 3) how television viewers process weather information, and the reasoning skills associated with scientific information processing. 3 Cr.

ESC 331 Cartography (B). Covers the methods and principles of designing maps for visualization, communication and analysis. Cover color, symbology, scale, projection and other cartographic principles. 3 Cr. Even Spring.

ESC 350 Computational Methods in the Field Sciences (A). Prerequisite: One or more courses in the natural sciences and mathematics. Discusses methods of collecting, analyzing, and visualizing field data. Covers descriptive statistics, graphical and exploratory data analysis techniques, data transformations, parametric and nonparametric hypotheses testing, relational statistics, and linear modeling. 3 Cr. Every Semester.

ESC 351 Laboratory Experiences in Scientific Programming. Prerequisite or corequisite: ESC 350. Provides laboratory activities concerning writing scientific computer programs in FORTRAN or C. Covers basic features of FORTRAN or C programming languages, including arithmetic computations, control structures, data files, array processing, and modular programming. Also familiarizes students with commonly used numerical methods in earth sciences. 1 Cr. Even Spring.

ESC 362 Climate Change & Global Warming Issues (A,I). Explores various aspects of the global warming debate, including the present understanding of the science of climate change, uncertainties associated with future climate predictions and how developed, developing and underdeveloped countries perceive potential impacts of climate change. Assesses how science impacts and is impacted by politics. Not acceptable toward any major or minor offered through the Department of Earth Sciences. 3 Cr. Even Fall.

ESC 364 Water Resources Issues (A,I). Studies water and hydrologic perspectives on problems of politics, economy and environment. Addresses issues involving the water resource by case studies ranging in scope from local to international. Requires participants to address and debate points of view in selected issues involving water resources. (Does not apply to the requirements for the earth science major.) 3 Cr.
ESC 391 Writing in the Earth Sciences (A). Covers style and the conventions of scientific writing including letters, memoranda, proposals, data reports, abstracts, as well as longer technical papers. Emphasizes style requirements of major professional earth science societies and their journals. 1-3 Cr. Every Semester.

ESC 399 Independent Study in Earth Science (A). Prerequisites: ESC 200 or 212. To be defined in consultation with the instructor-sponsor and in accordance with College procedures. 1-3 Cr. By Arrangement.

ESC 412 Hydrology with Lab (A). Prerequisites: MTH 201, ESC 211 or GEL 201, ESC 350 and 391 or instructor's permission. Covers the water cycle, including precipitation, runoff, streams and lakes, ground water, snow and other hydrologic topics. Also covers water storage and processes, analytical skills dealing with hydrologic events, and the utilization and conservation of water resources in terms of its distribution, quality and flow. 4 Cr. Odd Fall.

ESC 415 Physical Meteorology (A). Prerequisites: ESC 311, ESC 350, ESC 391, PHS 235, PSH 240, and MTH 202. Examines the principles of atmospheric thermodynamics, cloud microphysics, atmospheric radiation, and cloud electrification. 3 Cr. Odd Fall.

ESC 416 Thermodynamics and the Boundary Layer (A). Prerequisites: ESC 311, ESC 350, ESC 391, MTH 201 PHS 235. Allows students to study the basic thermodynamic principles of the atmosphere, including the importance of moisture and latent heat in atmospheric stability. The use and interpretation of thermodynamic diagrams is emphasized. Also explores the characteristics of atmospheric boundary layer and other topics pertaining to micrometeorology, such as turbulence and fluxes. 3 Cr. Odd Spring.

ESC 417 Dynamic Meteorology (A). Prerequisites: ESC 312, ESC 350, ESC 391, PHS 235, MTH 202 and MTH 255 or PHS 301. Covers the development of the governing equations of motion and simplifications, introduction to concepts of divergence, circulation, vorticity; mid-latitude synoptic scale motions; numerical methods and linear perturbation theory. 3 Cr. Odd Spring.

ESC 418 Watershed Sciences (A). Prerequisite: ESC 412 or GEL 462, ESC 350 and ESC 391. Covers the art and science of evaluating water, air and land resources in a watershed to provide scientific information for management policy decisions. Utilizes maps and other physical resource information, sampling, data processing and analysis. 3 Cr. Even Fall.

ESC 420 Radar and Satellite Meteorology (A). Prerequisites: ESC 211 or equivalent, ESC 350, and MTH 122. Corequisite: ESC 391. Students learn the standards of weather observation and the physical operating principles of meteorological instrumentation, including radars, satellites, and in situ platforms. Focused toward the interpretation of radar and satellite imagery. Examines topics from conventional and Doppler radars to polarimetric radars and multispectral satellite systems. 4 Cr. Even Spring.

ESC 421 Air Pollution Meteorology (A). Prerequisites or corequisites: ESC 350 and ESC 391. For students, engineers and professional people training to measure air pollution levels or measure and evaluate meteorological parameters which affect the diffusion and concentration of pollutants in the atmosphere. Provides knowledge of the effects of meteorology in air pollution. Covers factors related to site selection, control programs, and interpretation of surveys. Also studies diffusion using mathematical models. 3 Cr.

ESC 431 GIS Applications in Earth and Environmental Science (A). Prerequisite: ESC 230. Introduces students to spatial analysis theories, techniques, and issues associated with ecological and environmental applications. Provides hands-on training in the use of spatial tools while addressing a real problem. Students will be able to experience linking GIS analyses to field assessments and monitoring activities. 3 Cr.

ESC 432 Tropical Meteorology (A). Prerequisites: ESC 311, ESC 350, ESC 391, MTH 201 and PHS 235. Provides a comprehensive description of the characteristics of the atmosphere in the Tropics, as well as in-depth discussions on the weather systems and climatic patterns that affect and develop in tropical regions, such as hurricanes, monsoonal circulations, El Niño Southern Oscillation, and the Madden-Julian Oscillation. Also discusses interactions between the atmosphere and oceans at various time scales. 3 Cr. Even Fall.

ESC 452 Mesoscale Meteorology (A). Prerequisites: ESC 312, ESC 350, ESC 391, MTH 201 and PHS 235. An introduction to mesoscale processes and precipitation systems, with an emphasis on deep convection and severe weather. Covers severe storm type, structure, and organization, radar and satellite signatures of mesoscale and convective features, and the roles of atmospheric instabilities in the growth of mesoscale phenomena. Diagnosis and short-term prediction of severe storms via lecture and exercises. 3 Cr. Even Spring.

ESC 455 Introduction to Soils Science (A). Prerequisites: GEL 201, CHM 205, ESC 350 and ESC 391 or instructor's permission. Covers the formation, properties and characterization of soils, especially...
those found in New York state; measurement of physical and chemical properties in field and classroom; and management, conservation, and applications of soil survey. 3 Cr. Even Fall.

**ESC 457 Marine Geology-Bahamas (A).** Cross-listed as BIO 457. Prerequisite: Instructor’s permission. Prepare in the fall semester for a two-week January intersession field experience in coral reef biology and geology on San Salvador Island in the Bahamas. Study identification, behavior, and ecology of marine organisms in five habitats associated with coral reefs. Learn how to prepare a scientific field notebook and to design, conduct and write a paper on a personal research project. 3 Cr. Fall.

**ESC 460 Meteorological Internship (A).** Prerequisite: Instructor’s permission. Provides first-hand knowledge and experience concerning the application of meteorology to industrial and governmental requirements. Requires group work in scientific fields. Allows students to design and conduct applied meteorological research. 1-3 Cr. By Arrangement.

**ESC 462 Hydrometeorology (A).** Prerequisites: ESC 350, ESC 211 and MTH 201. The interface between meteorologic and hydrologic processes governs the impact that weather has on the human and natural environment. This course examines underlying processes behind extreme events such as flooding, storm surge, and desertification. In this course students will learn about the processes that govern them as well as the extent of their effects, their causes and the models used to predict them. 4 Cr. Even Fall.

**ESC 464 Environmental Internship (A).** Prerequisite: ESC 412 and 455 or instructor’s permission. Allows for application of skills acquired in course work to selected environmental problems. Directed by professionals in the field; project work must meet their standards. 1-3 Cr. By Arrangement.

**ESC 490 Weather Briefing (A).** Prerequisite: ESC 312. Familiarizes students with state-of-the-art weather analysis and forecasting systems. Provides for observation and presentation of weather briefings and forecasts using these products. 1 Cr. Fall.

**ESC 493 Seminar in Earth Science Problems (A).** Prerequisites: ESC 350 and ESC 391, and senior status. In-depth consideration of an earth sciences topic beyond formal course offerings; synthesis of material from background of courses taken to be applied in technical report. Requires the report to also be presented in a critical, professional setting to faculty and students. 2 Cr. Every Semester.

**ESC 499 Independent Study in Earth Science (A).** Prerequisite: ESC 200, 212, 350 and 391. To be defined in consultation with the instructor-sponsor and in accordance with College procedures. 1-3 Cr. By Arrangement.

**GEL 100 Our Earth (A,N).** Develops an understanding of our earth and of the processes that operate within it and upon its surface; and basic scientific principles and earth phenomena of importance including the observation of rocks, minerals, landforms, structures, volcanoes, earthquakes, water on and beneath the surface, and other natural processes that affect earth and life. 3 Cr. Every Semester.

**GEL 201 Introduction to Physical Geology (A,L).** Covers basic scientific principles and phenomena, including mineral and rock formation, volcanoes, earthquakes, landforms, structure, surface and groundwater and other natural processes which affect earth and life. Includes laboratory study of minerals, rocks, maps used by geologists, aerial photographs and up to two local field trips. 4 Cr. Fall.

**GEL 302 Historical Geology (A).** Prerequisite: GEL 201. Covers the origin and evolution of the earth and the historical development of life and the North American continent; and the background of the modern concepts of geology, including plate tectonics. Develops observational skills in the laboratory and field. Saturday field trip required. 4 Cr. Spring.

**GEL 303 Field Geology of New York (A).** Prerequisite or Corequisite: GEL 302. Examines regional stratigraphy, lithologic correlation, and paleoenvironments in the context of the geologic history of Western New York. Emphasizes identification of rocks and sedimentary structures in the field, interpretation of stratigraphic sections and techniques of gathering and recording geologic data in the field. Eight day-long field trips occur during the first summer session. One field trip may involve an overnight stay. This course is not applicable to the earth science or geology major. 3 Cr.

**GEL 306 Introduction to Paleontology (A).** Prerequisite: GEL 302 or instructor’s permission. Covers the principles of paleontology and the study of fossils including facies and index fossils, environmental control of species morphology, the basis of taxonomy, general biostratigraphic concepts and practices, and the use of fossils in the economic and scientific world. Presents various invertebrate and vertebrate groups as examples of the concepts. 4 Cr. Even Fall.

**GEL 312 Mineral Science I (A).** Prerequisites: GEL 201, CHM 205 and CHM 206. Introduces the structure and properties of mineral materials with emphasis on principles of bonding, crystal chemistry, crystal symmetry and morphology. Covers composition, atomic arrangement, identification
and classification of major mineral groups, their geologic occurrences, and their role in understanding the rock record. Focuses in laboratories on physical and chemical properties of minerals, and suites of minerals found in common rocks. Requires weekend field trip. 4 Cr. Odd Fall.

GEL 362 Energy and Mineral Resources Issues (A,D,I). Examines the significance of energy and mineral resources to modern social, economic, and political forces. Covers current issues involving energy and mineral resources through local to global case studies. Requires participants to discuss perspectives on energy and mineral resource development and exploitation, present use and management, and alternatives to current utilization practices. Not acceptable credit toward any major or minor offered through the Department of Earth Sciences. 3 Cr. Odd Spring.

GEL 363 Environmental Geology (A). Prerequisite: GEL 201 or instructor’s permission. Explores the geologic problems of our environment including lake, deserts, oceans and continents; problems and solutions regarding surface and groundwater supply, mass wasting earthquakes, resource development and exploration, dams and dam sites, waste disposal, land reclamation and catastrophic events; and laboratory methods for the study of environmental geology. Requires one three-day weekend field trip. 3 Cr. Even Spring.

GEL 399 Independent Study in Geology (A). To be defined in consultation with the instructor-sponsor and in accordance with the procedures of the Office of Academic Advisement prior to registration. 1-3 Cr. By Arrangement.

GEL 408 Structural Geology (A). Prerequisites: GEL 302, ESC 350 and ESC 391 or instructor’s permission. Covers the principles of mechanical behavior of rocks during deformation; theories of origin of major and minor rock structures (folds, faults, rock cleavage, etc.) and their relationships to each other; and plate tectonics models for some major crustal structures. Emphasizes in the laboratory techniques of analyzing and solving three-dimensional problems, and gathering structural data in the field. Requires a weekend field trip and report. 4 Cr. Even Spring.

GEL 411 Stratigraphy and Sedimentology (A). Prerequisites: ESC 350, ESC 391 and GEL 302. Covers the physical, chemical and biological characteristics of sedimentary materials; sedimentary environments and geologic time; and the application of stratigraphic principles to a variety of problems involving sedimentary rocks in the geologic record. Employs techniques and instruments used in stratigraphy and sedimentology. Requires a weekend field trip and report. 4 Cr. Odd Fall.

GEL 415 Geomorphology (A). Prerequisites: GEL 201, ESC 350 and ESC 391. Covers the surface features of Earth and their origin. Emphasizes processes, both internal and external, which interact to produce landforms. Stresses an analytical approach to the formulation of valid inferences based on accurate observations. 4 Cr. Odd Spring.

GEL 457 Geochemistry (A). Cross listed as CHM 457. Prerequisites: CHM 205, CHM 206 and GEL 201. Applies basic chemical principles of thermodynamics, kinetics, and equilibrium to the investigation of common geologic problems ranging from the crystallization of silicate melts to surface reactions on soil minerals. Focuses on laboratory exercises on application of good laboratory practices to wet chemical and instrumental techniques involving geologic materials. Three hours lecture and three hours lab per week. 4 Cr. Even Spring.

GEL 462 Groundwater (A). Prerequisites: GEL 201, ESC 350, ESC 391 and MTH 201. Studies groundwater; and its occurrence, movement and use, and its place in the hydrologic cycle. Examines the origin of aquifers, use and effects of wells, and water quality and groundwater problems. Laboratory focuses on practical application of principles to solving hydrogeologic problems. 4 Cr. Odd Spring.

GEL 476 Geologic Techniques (A). Prerequisites: GEL 306 and GEL 312 or instructor’s permission. Covers techniques needed by the professional geologist, complex mineral and rock forms, interpretation of map and structure sections, thin-sectioning, surveying, photo-micrographic methods, and the use of seismograph methods. 2 Cr. By Arrangement.

GEL 499 Independent Study in Geology (A). Prerequisite: ESC 350, ESC 391 or GEL 302. Arranged in consultation with the instructor-sponsor and in accordance with the procedures of the Office of Academic Advisement prior to registration. 1-3 Cr. By Arrangement.
DEPARTMENT OF EDUCATION AND HUMAN DEVELOPMENT

282 Albert W. Brown Building
(585) 395-2205

Chairperson and Associate Professor: Sue Novinger, PhD, University of Missouri-Columbia; Distinguished Service Professor: Betsy Ann Balzano, PhD, Florida State University; Professors: Thomas R. Giblin, EdD, University of Florida; Christine Murray, PhD, Syracuse University; Associate Professors: Mary Corey, PhD, University of Rochester; Moira Fallon, PhD, University of New Mexico; Conrad Van Voorst, EdD, Vanderbilt University; Peter Veronesi, PhD, University of Iowa; Assistant Professors: Jeremy Browne, PhD, Brigham Young University; Donald Halquist, PhD, University of New Mexico; Karen Hutchison, EdD, University of Texas at San Antonio; Eun-Joo Kim, PhD, University of Georgia; Dong Shin-shin, PhD, University of Massachusetts at Amherst; Janka Szilagyi, PhD, University at Buffalo; Jie Zhang, PhD, Tennessee Technological University; Visiting Assistant Professors: Carole Pelttari, MA, Indiana State University; Jill Zarazinski, MS, University at Buffalo; Lecturers: Frank Rossi, MS, SUNY College at Geneseo; Allison Wright, MSED, The College at Brockport; Director of Field Experience and Certification: Diane Maurer, MSED, SUNY Buffalo; Assistant Coordinator of Field Experience: Shelly Smith, MS, The College at Brockport; Coordinator for Certification and Graduate Advisement: Barbara Smithgall, MS, Rochester Institute of Technology; Coordinator for Undergraduate Education Programs: Nancy Di Pasquale, MSED, SUNY College at Buffalo.

The Department of Education and Human Development offers teacher certification programs in Childhood Inclusive Education and Adolescence Inclusive Education. Teacher candidates pursuing a degree program with certification must also complete an appropriate academic major.

Admission Requirements
There are specific requirements for acceptance to all teacher education programs and additional requirements for maintaining eligibility. For all certification areas, admission to the program requires a separate application, usually prior to entering the junior year. Applications review dates are available on the department Web site. Applications are available from the Department of Education and Human Development Web page at www.brockport.edu/ehd and the Office of Undergraduate Admissions. All programs require a minimum cumulative 2.5 GPA for entrance and for continued eligibility. All programs are competitive and not all students meeting the minimum admission requirements may be accepted in periods of high demand.

Special Note
Many teacher preparation programs require more than 120 credits and may require more than eight semesters of full-time study. In addition, many programs require availability during school hours for completion of course and field experience requirements.

Important Notice
New York State Board of Regents policies have lead to changes in both certificate titles and certification requirements. These changes are reflected in this catalog and on our Web page. Brockport’s programs have been approved by NYSED and provide teacher preparation for certification that is eligible for the College’s recommendation for a New York State teaching certificate. Programs satisfy New York State academic requirements and, under the terms of the Interstate Agreement, the academic requirements for an initial certificate in many other states.

The Department of Education and Human Development is a member of the Professional Education Unit at Brockport and is fully accredited by the National Council for Accreditation of Teacher Education (NCATE) for its teacher education programs.

Successful completion of the following New York State Teacher Certification Examinations are required for initial certification: Liberal Arts and Sciences Test (LAST), the Assessment of Teaching Skills–Written (ATS-W), and Content Specialty Tests. Upon program admission teacher candidates receive further information about state examination requirements. Please refer to Teacher Preparation at Brockport in this catalog and to our Web page for additional information on certification.
**Childhood Inclusive Education Program (Grade 1-6)**

The Department of Education and Human Development offers a Childhood Inclusive Education Program that includes initial dual certification in Childhood and Students with Disabilities (Grades 1-6) qualifying teacher candidates to teach in general and special education/inclusive classrooms. Certification in Childhood Inclusive Education requires an appropriate major in an academic area. Education is NOT a major at Brockport. Approved majors are listed below under Program Requirements. Specific advisement is provided for both the academic major and the certification program. Students should contact the Department of Education and Human Development about education requirements and their academic department about major and general education requirements as early as possible when planning their programs.

**Program Requirements**

I. General Education Requirements: Teacher candidates must meet the General Education requirements in effect at the time of matriculation.

II. Pre-professional Preparation: Academic Major — Teacher candidates seeking certification in Childhood/Special Education must complete one of the following academic majors prior to graduation:

- **Arts for Children**
- **French**
- **Meteorology**
- **Biological Science**
- **Geology**
- **Physics**
- **Chemistry**
- **Health Science**
- **Political Science**
- **Earth Science**
- **History**
- **Spanish**
- **English**
- **Mathematics**

III. Pre-professional Preparation: Arts and Science Cognates. In addition to choosing one of the majors listed above, all Childhood Inclusive teacher candidates must complete the following cognate courses, some of which may also meet requirements in the major and/or General Education core. The following courses fulfill the liberal arts cognate requirements in the Childhood Inclusive Program and may be taken prior to acceptance into the program.

<table>
<thead>
<tr>
<th>Credits</th>
<th>Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. 3-6</td>
<td>Foreign Language-one year of college-level study or its equivalent of a language other than English with a minimum grade of “C” at the 112 level. American Sign Language can be used to fulfill this requirement.</td>
</tr>
<tr>
<td>B. 6</td>
<td>English 482 Children’s Literature</td>
</tr>
<tr>
<td>3</td>
<td>An advanced writing course from one of the following: ENL 210 Creative Writing, ENL 303 Introduction to Literary Analysis (English majors), ENL 305 Advanced Composition, ENL 405 Creative Writing for Teachers, HLS 306 Contemporary Issues in Health (Health Science majors), HST 390 The History Seminar (History majors)</td>
</tr>
<tr>
<td>C. 6</td>
<td>Mathematics</td>
</tr>
<tr>
<td>3</td>
<td>MTH 313 Mathematics for Elementary Teachers I</td>
</tr>
<tr>
<td>3</td>
<td>MTH 314 Mathematics for Elementary Teachers II</td>
</tr>
<tr>
<td>D. 6-8</td>
<td>Science</td>
</tr>
<tr>
<td>4</td>
<td>NAS 273 Investigation in the Physical Science</td>
</tr>
<tr>
<td>3-4</td>
<td>One course in field natural science or earth science</td>
</tr>
</tbody>
</table>

Choose either:

- BIO 111 Principles of Biology (4)
- OR
  - GEL 100 Our Earth (3)
IV. Professional Preparation: Education Courses (46 credits)

**Phase 1**
*PSH 384, PRO 370 and EDI 413 may be taken prior to program acceptance. PSH 384 and PRO 370 require a minimum grade of “C.”
* All EDI courses require a minimum grade of “C+.”

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSH 384 Child Psychology*</td>
<td>3</td>
</tr>
<tr>
<td>PRO 370 Health and Drug Education for Teacher Candidates*</td>
<td>1</td>
</tr>
<tr>
<td>EDI 330 Inquiry Into Learning**</td>
<td>3</td>
</tr>
<tr>
<td>EDI 413 Introduction to Special Education*</td>
<td>3</td>
</tr>
<tr>
<td>**Total:</td>
<td>10</td>
</tr>
</tbody>
</table>

**Phase 2 (must be taken concurrently):**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDI 407 Emergent Language and Literacy</td>
<td>3</td>
</tr>
<tr>
<td>EDI 414 Methods in Special Education**</td>
<td>3</td>
</tr>
<tr>
<td>EDI 423 Diverse Learners in Social Studies</td>
<td>3</td>
</tr>
<tr>
<td>**Total:</td>
<td>9</td>
</tr>
</tbody>
</table>

**Phase 3 (must be taken concurrently with the exception of EDI 430):**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDI 417 Language, Literacy, and the Learner**</td>
<td>3</td>
</tr>
<tr>
<td>EDI 419 Assessment in Special Education</td>
<td>3</td>
</tr>
<tr>
<td>EDI 424 Diverse Learners in Math</td>
<td>3</td>
</tr>
<tr>
<td>EDI 425 Diverse Learners in Science</td>
<td>3</td>
</tr>
<tr>
<td>EDI 430 Education and Society (Once accepted, may be taken in any Phase prior to Phase 4)</td>
<td>3</td>
</tr>
<tr>
<td>**Total:</td>
<td>15</td>
</tr>
</tbody>
</table>

**Note:** 50-hour field experience beyond class time required in these courses.

**Note:** All pre-professional cognates and professional courses in Phases 1-3 must be completed prior to student teaching.

V. Professional Preparation: Student Teaching with Seminar (12 credits)

**Phase 4**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDI 455 Practicum and Seminar in Inclusive Childhood Education</td>
<td>12</td>
</tr>
<tr>
<td>**Total:</td>
<td>12</td>
</tr>
</tbody>
</table>

**Note:** Teacher candidates are responsible for their own transportation for all off-campus field experiences, including student teaching.
Adolescence Inclusive Education with Middle Childhood Education Extension (Grade 5-12)

Program Requirements
The Department of Education and Human Development offers an Adolescence Inclusive Education Program that includes initial dual certification in Adolescence and Students with Disabilities (with Middle Childhood extension) in nine areas: English (Literature Track); in foreign language French and Spanish; mathematics; in biology, chemistry, earth science, physics; and social studies (history major). The four science areas include an optional general science certification and an optional dual science major. Teacher candidates with initial dual certification will be qualified to teach in their content area of certification and in special education classrooms in grade 5-12.

Teacher candidates who complete a degree from Brockport that includes an approved program of teacher preparation for certification are eligible for the College’s recommendation for a teaching Certificate. Approved programs satisfy New York State academic requirements and, under the terms of the Interstate Agreement, the academic requirements for an initial certificate in many other states. Initial certification in New York State requires satisfactory performance on the New York State Liberal Arts and Sciences Test (LAST) the written Assessment of Teaching Skills (ATS-W), and Content Specialty Tests. Please refer to the section on Teacher Preparation at Brockport in this catalog for additional information on certification.

Each Adolescence Inclusive Education certification area requires an academic major in the subject area of certification. Specific advisement is provided for both the academic major and the certification area. Teacher candidates interested in teacher certification should contact the Department of Education and Human Development about education requirements and their academic department about major and General Education requirements as early as possible when planning their programs. Teacher candidates are responsible for their own transportation for all off-campus field experiences, including student teaching.

Admission to the Adolescence Inclusive Education program requires a separate application and completion of at least 12-15 credits in the major at time of application.

English-Inclusive 5-12
Program Requirements
I. General Education Requirements: Teacher candidates must meet the General Education requirements in effect at the time of matriculation.

II. Pre-professional Preparation: Academic Major — Teacher candidates must formally declare a major in English (Literature track), and successfully complete all requirements for the major, described under the listing for the Department of English in this catalog. At least 12-15 credits in the English major (Literature track) must be completed prior to Phase 1.

III. Professional Preparation: Education Courses (43-46 credits)
Phase 1

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foreign Language, EDI 413, PSH 484 and PRO 370 may be taken prior to program acceptance. Foreign Language, PSH 484 and PRO 370 require a minimum grade of “C.” All EDI courses require a minimum grade of “C+.”</td>
<td>6</td>
</tr>
<tr>
<td>Foreign Language – one year of college-level study in a language other than English at 112 level</td>
<td>3</td>
</tr>
<tr>
<td>EDI 445 Inclusive Middle Level Teaching in English**</td>
<td>3</td>
</tr>
<tr>
<td>EDI 431 Language Skills in Middle and High School Content Area I</td>
<td>3</td>
</tr>
<tr>
<td>EDI 413 Introduction to Special Education*</td>
<td>3</td>
</tr>
<tr>
<td>PSH 484 Adolescence*</td>
<td>3</td>
</tr>
<tr>
<td>PRO 370 Health and Drug Education for Teacher Candidates*</td>
<td>1</td>
</tr>
</tbody>
</table>

Total: 16-19
Phase 2
EDI 465  Teaching English Inclusively**  3
EDI 430  Education and Society (Once accepted can be completed in any phase prior to Phase 4)  3
EDI 432  Language Skills in the Middle and High School Content Areas II  3
Total: 9

Phase 3
EDI 414  Methods in Special Education **  3
EDI 419  Assessment in Special Education  3
Total: 6

**50-hour field experience beyond class time is required for this course. Teacher candidates are responsible for their own transportation for all off-campus field experiences, including student teaching.

Note: All professional preparation courses in Phases 1-3 must be successfully completed prior to student teaching.

IV. Professional Preparation: Student Teaching with Seminar (12 credits)

Phase 4
EDI 475  Practicum in Inclusive Adolescence and Seminar  12
Total: 12

Foreign Language Inclusive 5-12
Program Requirements
I. General Education Requirements: Teacher candidates must meet the General Education requirements in effect at the time of matriculation.

II. Pre-professional Preparation: Academic Major — Teacher candidates must formally declare either a major in French or Spanish, and successfully complete all requirements for the major, described under the listing for the Department of Foreign Language in this catalog. At least 12-15 credits in either the French or Spanish major must be completed prior to Phase 1.

III. Professional Preparation: Education Courses (43-46 credits)
Phase 1
*Foreign Language, EDI 413, PSH 484 and PRO 370 may be taken prior to program acceptance. Foreign Language, PSH 48 and PRO 370 require a minimum grade of “C.”
All EDI courses require a minimum grade of “C+.”
Foreign Language – one year of college-level study in a language other than English at 112 level*  3-6
EDI 449  Inclusive Middle Level Teaching in Foreign Language**  3
EDI 431  Language skills in the Middle and High School Content Area I  3
EDI 413  Introduction to Special Education*  3
PSH 484  Adolescence*  3
PRO 370  Health and Drug Education for Teacher Candidates*  1
Total: 16-19

Phase 2
EDI 469  Teaching Foreign Language Inclusively**  3
EDI 430  Education and Society (Once accepted can be completed in any phase prior to Phase 4)  3
EDI 432  Language Skills in the Middle and High School Content Areas II  3
Total: 9
Phase 3
EDI 414  Methods in Special Education **  3
EDI 419  Assessment in Special Education  3

Total: 6

** 50-hour field experience beyond class time is required for this course. Teacher candidates are responsible for their own transportation for all off-campus field experiences, including student teaching.

Note: All professional preparation courses in Phases 1-3 must be successfully completed prior to student teaching.

IV. Professional Preparation: Student Teaching with Seminar (12 credits)

Phase 4
EDI 475  Practicum in Inclusive Adolescence Education and Seminar  12

Total: 12

Mathematics Inclusive 5-12

Program Requirements
I. General Education Requirements: Teacher candidates must meet the General Education requirements in effect at the time of matriculation.

II. Pre-professional Preparation: Academic Major — Teacher candidates must formally declare a major in mathematics, and successfully complete all requirements for the major, described under the listing for the Department of Mathematics in this catalog. At least 12-15 credits in the mathematics major must be completed prior to Phase 1.

III. Professional Preparation: Education Courses (43-46 credits)

Phase 1

*Foreign Language, EDI 413, PSH 484 and PRO 370 may be taken prior to program acceptance. Foreign Language, PSH 484 and PRO 370 require a minimum grade of “C.”

All EDI courses require a minimum grade of “C+.”

Foreign Language – one year of college-level study in a language other than English at 112 level*  3-6
EDI 446  Inclusive Middle Level Teaching in Mathematics**  3
EDI 431  Language Skills in Middle and High School Content Area I  3
EDI 413  Introduction to Special Education*  3
PSH 484  Adolescence*  3
PRO 370  Health and Drug Education for Teacher Candidates*  1

Total: 16-19

Phase 2

EDI 466  Teaching Mathematics Inclusively**  3
EDI 430  Education and Society (Once accepted can be completed in any phase prior to Phase 4)  3
EDI 432  Language Skills in Middle and High School Content Area II  3

Total: 9

Phase 3

EDI 414  Methods in Special Education **  3
EDI 419  Assessment in Special Education  3

Total: 6

** 50-hour field experience beyond class time is required for this course. Teacher candidates are responsible for their own transportation for all off-campus field experiences, including student teaching.
Note: All professional preparation courses in Phases 1-3 must be successfully completed prior to student teaching.

IV. Professional Preparation: Student Teaching with Seminar (12 credits)

<table>
<thead>
<tr>
<th>Phase 4</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDI 475 Practicum in Inclusive Adolescence Education and Seminar</td>
<td>12</td>
</tr>
<tr>
<td><strong>Total:</strong></td>
<td><strong>12</strong></td>
</tr>
</tbody>
</table>

Science Inclusive 5-12
Program Requirements

I. General Education Requirements: Teacher candidates must meet the General Education requirements in effect at the time of matriculation.

II. Pre-professional Preparation: Academic Major: Students must formally declare a major in one of the following sciences: biology, chemistry, earth science or physics and successfully complete all requirements for the major, described under the listing for the Department of Biology, Chemistry, Earth Science or Physics in this catalog. At least 12-15 credits in the major must be completed prior to Phase 1.

III. To obtain the optional general science certification, teacher candidates must complete a minimum of 18 credits in at least two science areas other than the declared science major.

IV. To obtain an optional dual science certification, teacher candidates must complete a minimum of 24 semester hours of study in a single science area outside their declared science major.

V. Professional Preparation: Education Courses (43-46 credits)

<table>
<thead>
<tr>
<th>Phase 1</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Foreign Language, EDI 413, PSH 484 and PRO 370 may be taken prior to program acceptance. Foreign Language, PSH 484 and PRO 370 require a minimum grade of “C.” “All EDI courses require a minimum grade “C+.” Foreign Language – one year of college-level study in a language other than English at 112 level</em></td>
<td>3-6</td>
</tr>
<tr>
<td>EDI 447 Inclusive Middle Level Teaching in Science**</td>
<td>3</td>
</tr>
<tr>
<td>EDI 431 Language Skills in Middle and High School Content Area I</td>
<td>3</td>
</tr>
<tr>
<td>EDI 413 Introduction to Special Education*</td>
<td>3</td>
</tr>
<tr>
<td>PSH 484 Adolescence*</td>
<td>3</td>
</tr>
<tr>
<td>PRO 370 Health and Drug Education for Teacher Candidates*</td>
<td>1</td>
</tr>
<tr>
<td><strong>Total:</strong></td>
<td><strong>16-19</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Phase 2</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDI 467 Teaching Science Inclusively**</td>
<td>3</td>
</tr>
<tr>
<td>EDI 430 Education and Society (Once accepted can be completed in any phase prior to Phase 4)</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total:</strong></td>
<td><strong>9</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Phase 3</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDI 414 Methods in Special Education **</td>
<td>3</td>
</tr>
<tr>
<td>EDI 419 Assessment in Special Education</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total:</strong></td>
<td><strong>6</strong></td>
</tr>
</tbody>
</table>

**50-hour field experience beyond class time is required for this course. Teacher candidates are responsible for their own transportation for all off-campus field experiences, including student teaching.**

Note: All professional preparation courses in Phases 1-3 must be successfully completed prior to student teaching.
VI. Professional Preparation: Student Teaching with Seminar (12 credits)

**Phase 4**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDI 475 Practicum in Inclusive Adolescence</td>
<td>12</td>
</tr>
<tr>
<td>Education and Seminar</td>
<td></td>
</tr>
<tr>
<td>Total:</td>
<td>12</td>
</tr>
</tbody>
</table>

**Social Studies Inclusive 5-12 Program Requirements**

I. General Education Requirements: Teacher candidates must meet the General Education requirements in effect at the time of matriculation.

II. Pre-professional Preparation: Academic major: Teacher candidates must formally declare a major in history, and successfully complete all requirements for the major, described under the listing for the Department of History in this catalog. At least 12-15 credits in the History major must be completed prior to Phase 1.

III. Pre-professional Preparation: Social Science Courses (12 credits)

**Credits**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PLS 113 American Political Systems</td>
<td>3</td>
</tr>
<tr>
<td>ESC 102 Elements of Geography</td>
<td>3</td>
</tr>
<tr>
<td>Choose one course from the following areas:</td>
<td>3</td>
</tr>
<tr>
<td>African-American Studies, Anthropology, or Sociology</td>
<td>3</td>
</tr>
<tr>
<td>ECN 100 Contemporary Economic Problems</td>
<td>3</td>
</tr>
<tr>
<td>OR</td>
<td></td>
</tr>
<tr>
<td>ECN 202 Macro Economics</td>
<td></td>
</tr>
<tr>
<td>Total:</td>
<td>12</td>
</tr>
</tbody>
</table>

IV. Professional Preparation: Education Courses (43-46 credits)

**Phase 1**

*Foreign Language, EDI 413, PSH 484 and PRO 370 may be taken prior to program acceptance. Foreign Language, PSH 484 and PRO 370 require a minimum grade of “C.” All EDI courses require a minimum grade of “C+.”

**Credits**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foreign Language – one year of college level study in a language other than English at 112 level*</td>
<td>3-6</td>
</tr>
<tr>
<td>EDI 448 Inclusive Middle Level Teaching in Social Studies**</td>
<td>3</td>
</tr>
<tr>
<td>EDI 413 Introduction to Special Education*</td>
<td>3</td>
</tr>
<tr>
<td>EDI 431 Language Skills in Middle and High School Content Areas I</td>
<td>3</td>
</tr>
<tr>
<td>PSH 484 Adolescence*</td>
<td>3</td>
</tr>
<tr>
<td>PRO 370 Health and Drug Education for Teacher Candidates*</td>
<td>1</td>
</tr>
<tr>
<td>Total:</td>
<td>16-19</td>
</tr>
</tbody>
</table>

**Phase 2**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDI 468 Teaching Social Studies Inclusively**</td>
<td>3</td>
</tr>
<tr>
<td>EDI 430 Education and Society (Once accepted can be completed in any phase prior to Phase 4)</td>
<td>3</td>
</tr>
<tr>
<td>EDI 432 Language Skills in the Middle and High School Content Areas II</td>
<td>3</td>
</tr>
<tr>
<td>Total:</td>
<td>9</td>
</tr>
</tbody>
</table>

**Phase 3**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDI 414 Methods in Special Education**</td>
<td>3</td>
</tr>
<tr>
<td>EDI 419 Assessment in Special Education</td>
<td>3</td>
</tr>
<tr>
<td>Total:</td>
<td>6</td>
</tr>
</tbody>
</table>

**Note:** All professional preparation courses in Phases 1-3 must be successfully completed prior to student teaching.

**50-hour field experience beyond class time is required for this course. Students are responsible for their own transportation for all off-campus field experiences, including student teaching.**
V. Professional Preparation: Student Teaching with Seminar (12 credits)

<table>
<thead>
<tr>
<th>Phase 4</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDI 475 Practicum in Adolescence Inclusive Education and Seminar</td>
<td>12</td>
</tr>
</tbody>
</table>

Total: 12

**Department of Education and Human Development Courses**

**EDI 330 Inquiry into Learning (A).** Prerequisite: Acceptance in Childhood Inclusive Program. Explores current theories of learning. Also explores how students and others learn and examines the implications for school learning experiences. Ties how one learns to how we teach and assess understanding. Attention is given to meeting the diverse needs of all learners. Includes a 50-hour field component. 3 Cr. Every Semester.

**EDI 360 America Reads I (B).** Provides opportunities for students to work with children to improve their literacy skills in a classroom setting (k-6). Students are placed primarily with the Brockport Central School District. Students have the opportunity to learn tutoring techniques, create lesson plans and grade papers. Includes a 60 hour field component. 3 Cr. Every Semester.

**EDI 361 America Reads II (B).** Prerequisite: EDI 360. Provides opportunities for students to work with children to improve their literacy skills in a classroom setting (k-6). Students are placed primarily with the Brockport Central School District. Students have the opportunity to learn tutoring techniques, create lesson plans and grade papers. Includes a 60 hour field component. Requires students to serve as student mentors to help coordinate the activities of the first year students. 3 Cr. Every Semester.

**EDI 407 Emergent Language and Literacy (B).** Prerequisites: EDI 330, 413. Childhood corequisite: EDI 414, 423. Explores universality and diversity in the development of oral and written language. Emphasizes constructivist, sociocultural, and sociopsycholinguistic perspectives. Examines language processes, strategies, and materials for supporting all young children's oral and written language development. Also examines national and state standards for literacy learning. Explores authentic assessment strategies. 3 Cr.

**EDI 413 Introduction to Special Education (B).** Introduces teacher candidates to the characteristics of students with exceptionalities according to state and national standards and laws. Identification of students with diverse needs is an integral part of this course. Issues of diversity will be explored across race, culture, language, gender, religion, disability and socioeconomic status. An introduction will be required into issues of family/professional partnerships, learner-centered constructivism, collaboration and consultation skills, and community building. Addresses the philosophy of inclusion and collaboration for all students, effective teacher performance, and special education law for educators. 3 Cr. Every Semester.

**EDI 414 Methods in Special Education (B).** Prerequisite: EDI 413; Childhood Phase I EDI course(s). Corequisite: Phase II courses. Adolescence/Special Education Prerequisite: Phase I and II EDI courses. Corequisite: Phase III courses. Emphasizes serving students with a variety of needs in the inclusion classroom setting. Teacher candidates will learn to develop a positive and supportive learning environment for all students. Teacher candidates will also learn to select, modify and evaluate inclusive curricular materials and instructional techniques for individuals and groups of learners with disabilities taking into account the learners' abilities, learning rates and styles of learning. They will develop and apply instructional techniques for use in the inclusive classroom with individuals with disabilities, including the use of assistive technology services and devices. Includes a 50-hour field component. 3 Cr. Every Semester.

**EDI 417 Language Literacy and the Learner (B).** Prerequisite: EDI 330, EDI 407, EDI 414, 423. Corequisite: EDI 419, EDI 424, EDI 425. Expands understanding of language and literacy processes. Develops increasingly sophisticated understanding and skill in implementing strategies for supporting the language and literacy learning of diverse learners. Continued inquiry into a range of assessment strategies linking assessment and instruction. Examines integration of language and literacy across all curricular areas; creates environments that support children's language and literacy learning. Includes a 50 hour field component. 3 Cr. Every Semester.

**EDI 419 Assessment for Special Education (B).** Prerequisite EDI 413. Prepares teacher candidates with the skills, theory, practice and knowledge to engage in quality assessment of special education students. Examines principles and criteria of evaluative and diagnostic techniques, norm referenced testing, criteria/referenced testing, and informal teacher-made tests. Explores the use and understanding of standardized tests and test scores.
in statewide assessments; necessary skills in the practical application of classroom assessment for special education students. 3 Cr. Every Semester.

**EDI 420 Childhood Education for Language Teachers (B).** Explores the nature and development of the childhood curriculum including cognitive, affective, psychomotor, and linguistic development. Focuses on the theory, teaching methodology, classroom management, and development of appropriate foreign language materials at the childhood level. Designed for foreign language teacher candidates certified for grades 7-12 who wish to extend their certification to teach a language in grades 1-6. 3 Cr. Summer.

**EDI 421 Teaching the Bilingual Child (B).** Explores the social, emotional and cognitive implications of being a child who must function as a bilingual in a classroom setting. Relates theoretical knowledge to practice through observation and work with students in a bilingual setting. 3 Cr.

**EDI 422 TESOL: Materials and Techniques (B).** Examines second language acquisition theories in relation to the development of techniques and materials used in a formal classroom setting. Covers the development of proficiency and competency in the acquisition of the skills of listening, speaking, reading, and writing as it relates to English Language Learners (ELL). Examines the role of context and culture in the teaching of English Language Learners. Explores the role of the teacher in choosing appropriate materials and assessments for ELLs. Requires teacher candidates to develop and teach a microteaching lesson. 3 Cr. Fall.

**EDI 423 Diverse Learners in Social Studies (B).** Prerequisites: EDI 413, EDI 330, Corequisite: EDI 407, EDI 414. Fosters a teacher candidate’s ability to appropriately design and deliver elements of social studies instruction in grades 1 through 6. Includes implementing social studies lessons for diverse learning needs, integrating technology and other content areas, and developing meaningful assessments. Addresses New York State Learning Standards and Social Studies Core Curriculum, and the Ten Thematic Strands from the National Council for the Social Studies. 3 Cr. Every Semester.

**EDI 424 Diverse Learners in Mathematics (B).** Prerequisites: EDI 413, EDI 330, EDI 407, EDI 414, EDI 423, Corequisite: EDI 417, EDI 425, EDI 419. Allows teacher candidates to apply appropriate elements of instruction of mathematics in inclusive grades 1 through 6. Includes implementing problem-based mathematics lessons for diverse learning needs, integrating technology and other content areas, developing a range of meaningful assessments and addressing state and national learning standards in mathematics. In addition, teacher candidates will increase their content knowledge. 3 Cr. Every Semester.

**EDI 425 Diverse Learners in Science (B).** Prerequisites: EDI 413, EDI 330, EDI 407, EDI 414, EDI 423, Corequisite: EDI 417, EDI 424, EDI 419. Allows teacher candidates to apply appropriate elements of instruction of science in grades 1 through 6. Includes implementing inquiry-based science lessons for diverse learning needs, integrating technology and other content areas, connecting to families through science, developing a range of meaningful assessments and addressing state and national learning standards in science. In addition, teacher candidates will increase their content knowledge in science. 3 Cr. Every Semester.

**EDI 430 Education and Society (A,D,I,W,Y).** Prerequisite: Program admission. Focuses on social, cultural, historical, and philosophical foundations of education; changing roles of teachers within contexts of contemporary schools; and other programs serving children. The course will also explore the idea that education reflects the wider society in which we live. 3 Cr.

**EDI 431 Teaching Language Skills in Middle and High School Content Areas I.** Prerequisite: Admission to Adolescence Inclusive Education Program. Corequisites: EDI 413, EDI 44X. Focuses on the notion that reading and listening for meaning are critical to thinking about and learning content knowledge in all disciplines of study in the middle and high schools. Stresses the development of these language skills in early and later adolescence and examines the individual differences among learners and multiple approaches and strategies that may be used to improve students’ thinking and learning. Requires an analysis of reading and listening skills and abilities essential to successful learning in the disciplines that are taught in the middle and high schools. Identifies the successful strategies teachers and others have used to be effective readers and listeners and uses these as bridges to the construction of instructional units that improve performance. 3 Cr.

**EDI 432 Teaching Language Skills in Middle & High School Content Area 2 (B).** Prerequisite: Phase I Adolescence Inclusive Education. Builds on students’ study in EDI 431. This is the application level of literacy instruction, emphasizing effective teaching methods. This course explores the notion that reading, writing, and speaking are fundamental to thinking about and learning content knowledge in all disciplines of study. Students use written and verbal presentations to explore thinking processes, and to take skills and theory from EDI 431 and translate them into teaching practice. Learners will achieve an understanding of the kinds
of experiences that help students make meaning from text, write and speak with an authentic voice, and produce writing and verbal presentations of consequence. Students will design and deliver literacy lessons, integrate literacy lessons into their specific content, integrate technology into literacy lessons, engage learners through multiple research based methods, and further their understanding of an inclusive environment to promote literacy development. 3 Cr.

EDI 436 Gender Issues K-12 (A,W,Y). Cross-listed as WMS 436. Focuses on the issue of gender in schools K-12. Identifies and examines the ways in which gender roles are reinforced in schools and studies the ways in which race and class interact with gender to influence the schooling experience. Students learn ways in which teachers and other educators can promote an equitable educational experience for all students. 3 Cr. Every Semester.

EDI 445 Inclusive Middle Level Teaching in English (B). Prerequisite: Admission to Adolescence Inclusive Education Program. Corequisite: EDI 431. Introduces students to the methods and strategies involved in inclusive middle level English teaching. Explores the nature of teaching, instructional planning, designing unit and lesson plans, interdisciplinary approaches, assessment, and teaching portfolios. Includes practice teaching and reflection. Focuses on ability to work collaboratively as team members of teams clarify goals and construction of an educational philosophy. Requires 50 hours of field experience in a middle level inclusion classroom. 3 Cr.

EDI 446 Inclusive Middle Level Teaching in Mathematics (B). Prerequisites: Admission to Adolescence Education Program. Corequisite: EDI 431. Introduces students to the methods and strategies involved in inclusive middle level Mathematics teaching. Explores the nature of teaching, instructional planning, designing unit and lesson plans, interdisciplinary approaches, assessment, and teaching portfolios. Includes practice teaching and reflection. Focuses on ability to work collaboratively as team members of teams clarify goals and construction of an educational philosophy. Requires 50 hours of field experience in a middle level inclusion classroom. Every semester. 3 Cr.

EDI 447 Inclusive Middle Level Teaching in Science (B). Prerequisites: Admission to Adolescence Inclusive Education Program. Corequisite: EDI 431. Introduces students to the methods and strategies involved in inclusive middle level Science teaching. Explores the nature of teaching, instructional planning, designing unit and lesson plans, interdisciplinary approaches, assessment, and teaching portfolios. Includes practice teaching and reflection. Focuses on ability to work collaboratively as team members of teams clarify goals and construction of an educational philosophy. Requires 50 hours of field experience in a middle level inclusion classroom. Every semester. 3 Cr.

EDI 448 Inclusive Middle Level Teaching in Social Studies (B). Prerequisite: Admission to Adolescence Inclusive Education Program. Corequisite: EDI 431. Introduces teacher candidates to the methods and strategies involved in the teaching of middle and high school social studies. Begins the teacher candidates’ exploration of the nature of teaching, instructional planning, designing unit and lesson plans, interdisciplinary approaches, assessment, and teaching portfolios. Requires teacher candidates to practice teaching lessons they have designed and be reflective about their own and others’ lessons. Focuses on teacher candidates’ ability to work collaboratively as members of teams. Provides opportunities for teacher candidates to clarify their goals in pursuit of a teaching career and requires them to construct a personal statement of educational philosophy. Requires 50 hours of field experience in a middle level inclusion classroom. 3 Cr.

EDI 449 Inclusive Middle Level Teaching in Foreign Language (B). Prerequisite: Admission to Adolescence Inclusive Education Program. Corequisite: EDI 431. Introduces teacher candidates to the methods and strategies involved in the teaching of middle and high school foreign language. Begins the teacher candidates’ exploration of the nature of teaching, instructional planning, designing unit and lesson plans, interdisciplinary approaches, assessment, and teaching portfolios. Requires teacher candidates to practice teaching lessons they have designed and be reflective about their own and others’ lessons. Focuses on teacher candidates’ ability to work collaboratively as members of teams. Provides opportunities for teacher candidates to clarify their goals in pursuit of a teaching career and requires them to construct a personal statement of educational philosophy. Requires 50 hours of field experience. 3 Cr.

EDI 455 Practicum and Seminar in Inclusive Childhood Education (B). Prerequisites: Phase I, II, III Childhood Inclusive Education Program. Provides two (2) college-supervised student teaching experiences, one in grades 1-3, another in grades 4-6. One of these two placements is in special education. Candidates gain experiences in all aspects of teaching including planning, delivery, and assessment of student learning. The student teaching seminar provides support and encouragement for teacher candidates through meetings with peers, the college supervisor(s), and resource personnel. 12 Cr.
EDI 465 Methods of Teaching Secondary English (B). Prerequisites: EDI 413, EDI 431, EDI 445. Corequisites: EDI 432. Focuses on inclusive teaching strategies, lesson planning, instruction and assessment in English content areas. Emphasizes secondary curriculum content; New York State English Language Arts technological applications that apply to teaching and learning. Requires teacher candidates to become reflective practitioners, develop personal portfolios and become familiar with research in the field. Includes 50 hours of field experience in a high school inclusion classroom. 3 Cr.

EDI 466 Teaching Mathematics Inclusively (B). Prerequisites: EDI 413, EDI 431, EDI 446. Corequisites: EDI 432. Focuses on inclusive teaching strategies, lesson planning, instruction and assessment in mathematics content areas. Emphasizes secondary curriculum content; New York State MST technological applications that apply to teaching and learning. Requires teacher candidates to become reflective practitioners, develop personal portfolios and become familiar with research in the field. Includes 50 hours of field experience in a high school inclusion classroom. 3 Cr.

EDI 467 Teaching Science Inclusively (B). Prerequisites: EDI 413, EDI 431, EDI 447. Corequisites: EDI 432. Focuses on inclusive teaching strategies, lesson planning, instruction and assessment in science content areas. Emphasizes secondary curriculum content; New York State MST technological applications that apply to teaching and learning. Requires teacher candidates to become reflective practitioners, develop personal portfolios and become familiar with research in the field. Includes 50 hours of field experience in a high school inclusion classroom. 3 Cr.

EDI 468 Teaching Social Studies Inclusively (B). Prerequisites: EDI 413, EDI 431, EDI 448. Corequisites: EDI 432. Focuses on inclusive teaching strategies, lesson planning, instruction and assessment in social studies content areas. Emphasizes secondary curriculum content; New York State social studies standards; technological applications that apply to teaching and learning. Requires teacher candidates to become reflective practitioners, develop personal portfolios and become familiar with research in the field. Includes 50 hours of field experience in a high school inclusion classroom. 3 Cr.

EDI 469 Methods in Teaching Secondary Foreign Language (B). Prerequisites: EDI 413, EDI 431, EDI 449. Corequisites: EDI 432. Focuses on inclusive teaching strategies, lesson planning, instruction and assessment in foreign language content areas. Emphasizes secondary curriculum content; New York State second language standards; technological applications that apply to teaching and learning. Requires teacher candidates to become reflective practitioners, develop personal portfolios and become familiar with research in the field. Includes 50 hours of field experience in a high school inclusion classroom. 3 Cr.

EDI 475 Practicum and Seminar in Inclusive Adolescence Education (B). Prerequisites: Phase I, II, III Adolescence Inclusive Education Program. Provides two (2) college-supervised student teaching experiences, one in grades 7-9, another in grades 10-12. One of these two placements is in special education. Candidates gain experiences in all aspects of teaching including planning, delivery, and assessment of student learning. The student teaching seminar provides support and encouragement for teacher candidates through meetings with peers, the college supervisor(s), and resource personnel. 12 Cr.

EDI 490 Topics of Instruction (B). Meets the needs of intact groups of clients at the upper-division undergraduate level. Transcript title, content, bibliography and assessment procedures vary with the predetermined needs and interests of the group of clients served. 1-3 Cr.

EDI 499 Independent Study (B). To be defined in consultation with the instructor-sponsor and in accordance with the procedures of the Office of Academic Advisement prior to registration. 1-3 Cr.