

Instruction offered by members of the Faculty of Fine Arts and the Faculty of Kinesiology. Students must audition before they can register in some of the courses.

Program Coordinator - A. Flynn

Junior Courses

Dance 201 H(2-2)

Introductory Contemporary Dance I

Introductory study of the techniques of contemporary dance.

Note: Not open to Dance Majors

Dance 203 H(2-2)

Dancing: Body, Mind, Culture

An introduction to the study of dance in an academic setting.

Note: Open to Dance Majors only.

Dance 205 H(2S-2)

Introductory Contemporary Dance II

Further introductory study of the techniques of contemporary dance.

Prerequisite: Dance 201 or equivalent or consent of the Program of Dance.

Note: Not open to Dance majors.

Dance 207 H(2S-2)

Contemporary Dance I

Elementary study of the techniques of contemporary dance.

Prerequisites: Dance 205 or equivalent and audition.

Dance 209 H(2-2)

Contemporary Dance II

Further elementary study of the techniques of contemporary dance.

Prerequisites: Dance 207 or equivalent and audition.

Dance 211 H(2S-2)

Jazz Dance I

Introductory study of the techniques of jazz dance.

Dance 221 H(2S-2)

Ballet I

Introductory study of the techniques of ballet.

Dance 235 H(2S-2)

Conditioning for Dancers

Study of the basic principles of conditioning for dancers.

Prerequisite: Dance 203 or consent of the Program of Dance.

Senior Courses

Dance 303 H(2S-4)

Principles of Technique

Reinforcement of the basic principles of contemporary dance in preparation for more advanced study.

Prerequisites: Dance 209 or equivalent and audition.

Dance 305 H(2S-4)

Contemporary Dance III

Elementary/intermediate study of the techniques of contemporary dance.

Prerequisites: Dance 209 or equivalent and audition.

Dance 307 H(2S-4)

Contemporary Dance IV

Further elementary/intermediate study of the techniques of contemporary dance.

Prerequisites: Dance 305 or equivalent and audition.

Dance 309 H(3S-0)

Special Topics in Dance Theory

Prerequisite: Consent of the Program of Dance.

MAY BE REPEATED FOR CREDIT

Dance 311 H(2S-4)

Jazz Dance II

Elementary study of the techniques of jazz dance.

Prerequisites: Dance 211 or equivalent and audition.

Dance 313 H(2S-4)

Jazz Dance III

Further elementary study of the techniques of jazz dance.

Prerequisites: Dance 311 or equivalent and audition.

Dance 321 H(2S-4)

Ballet II

Elementary study of the techniques of ballet.

Prerequisites: Dance 221 or equivalent and audition.

Dance 323 H(2S-4)

Ballet III

Further elementary study of the techniques of ballet.

Prerequisites: Dance 321 or equivalent and audition.

Dance 331 H(2S-2)

Dance Improvisation

Experiences in individual and group improvisation. Development of skills in designing and participating in improvisational structures.

Prerequisites: Dance 209 and Dance Education 247 or equivalent; or consent of the Program of Dance.

Dance 333 H(2S-2)

Composition I

Introduction to basic skills in dance composition with a focus on the solo form.

Prerequisite: Dance 331 or equivalent or consent of the Program of Dance.

Dance 341 H(3S-0)
(formerly Dance 241)

Early Dance History

Historical survey of dance: origins to the nineteenth century.

Dance 345 H(3S-0)
(formerly Dance 245)

20th Century Dance History

Historical survey of western theatre dance.

Dance 365 H(2S-4)

Pilates Conditioning

Study of the Pilates method of conditioning utilizing the Pilates Reformer apparatus.

Prerequisites: Dance 235 or equivalent and consent of the Program of Dance.

Dance 375 H(2-2)

Body/Mind Practices

The theory and application of selected somatic practices.

Prerequisite: Kinesiology 261 or consent of the Program of Dance.

Dance 395 H(1S-5)

Dance Performance Practicum I

Practical experience in dance performance choreography, or artistic direction.

Prerequisite: Consent of the Program of Dance.

NOT INCLUDED IN GPA

Dance 397 H(1S-5)

Dance Performance Practicum II

Further practical experience in dance performance, choreography, or artistic direction.

Prerequisite: Consent of the Program of Dance.

Prerequisite or Corequisite: Dance 395.

NOT INCLUDED IN GPA

Dance 401 H(2S-2)

Open Contemporary Dance I

Study in the principles and techniques of contemporary dance, open to intermediate and advanced levels.

Prerequisites: Dance 307 or equivalent and audition.

Dance 403 H(2S-2)

Open Contemporary Dance II

Further study in the principles and techniques of contemporary dance, open to intermediate and advanced levels.

Prerequisites: Dance 401 or equivalent and audition.

Dance 405 H(2S-4)

Contemporary Dance V

Intermediate study of the techniques of contemporary dance.

Prerequisites: Dance 307 or equivalent and audition.

Dance 407 H(2S-4)**Contemporary Dance VI**

Further intermediate study of the techniques of contemporary dance.

Prerequisites: Dance 405 or equivalent and audition.

Dance 411 H(2S-4)**Jazz Dance IV**

Intermediate study of the techniques of jazz dance.

Prerequisites: Dance 313 or equivalent and audition.

Dance 413 H(2S-4)**Jazz Dance V**

Further intermediate study of the techniques of jazz dance.

Prerequisites: Dance 411 or equivalent and audition.

Dance 421 H(2S-4)**Ballet IV**

Intermediate study of the techniques of ballet.

Prerequisites: Dance 323 or equivalent and audition.

Dance 423 H(2S-4)**Ballet V**

Further intermediate study of the techniques of ballet.

Prerequisites: Dance 421 or equivalent and audition.

Dance 431 H(2S-2)**Composition II**

Continued exploration in basic dance composition skills progressing toward group forms.

Prerequisites: Dance 333 or equivalent and consent of the Program of Dance.

Note: Not open to students with credit in Dance 430.

Dance 433 H(2S-2)**Composition III**

Continued study of dance composition introducing such elements as sound, voice and text, physical theatre, the use of props and alternative spaces.

Prerequisites: Dance 431 or equivalent and consent of the Program of Dance.

Note: Not open to students with credit in Dance 430.

Dance 455 H(2S-4)**Contemporary Dance VI(a)**

Continuing intermediate study of the techniques of contemporary dance.

Prerequisites: Dance 407 or equivalent and audition.

Dance 457 H(2S-4)**Contemporary Dance VI(b)**

Further continuing intermediate study of the techniques of contemporary dance.

Prerequisites: Dance 455 or equivalent and consent of the Program of Dance.

Dance 463 H(2S-2)

Note: Not open to students with credit in Dance 463.

Junior Courses**Drama 200 F(3S-2)****Introduction to Acting**

Practical experience in acting; improvisation and introductory work from texts; the development of communication skills and personal acting creativity.

Drama 222 F(1-3)**Introduction to Theatre Production**

An introduction to design, technical and organizational principles of theatre production.

Note: Participation on the production crews of Department productions is required.

Drama 240 F(3-1T)**Introduction to Drama**

Interpretation and study of dramatic genres related to the Department's season of plays; introduction to play analysis.

Senior Courses

The following listing is provided to assist students in their selection of related groups of Drama courses.

Acting and Directing:

300	400	410	500	510
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Design and Technical:

313	315	317	319	321
325	329	409	411	415
417	419	423	425	429
517	519	531	533	

Dramatic Literature, Criticism, History, Theory:

340	342	344	356	440
452	540	552		

Theatre for Young Audiences and Developmental/Performance Drama:

360	362	364	460	462
560				

Senior Option Courses:

371	375	471	571	572
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Production Courses:

391	393	491	493	590
591	593			

Graduate Courses:

605	607	610	623	625
627	629	648	651	660
662				

Drama 300 F(2S-4)**Advanced Acting I**

Further development of fundamental acting techniques; participation in the Department's season of plays may be required.

Prerequisites: Drama 200 and consent of the Department.

Drama 313 H(2S-2)**Introduction to Design for Theatre I**

Basic set, props, lighting and costume design theory, process and technique for a variety of theatre forms and performance styles.

Prerequisite or Corequisite: Drama 319 or consent of the Department.

Drama 315 H(2S-2)**Introduction to Design for Theatre II**

Continuation of Drama 313.

Prerequisite: Drama 313 or consent of the Department.

Drama 317 H(2S-2)**Introduction to Stage Sound**

Basic principles of sound for the theatre: recording, reinforcement and reproduction techniques and methods used in creating a production design.

Prerequisite: Drama 222 or consent of the Department.

Note: This course meets for two hours per week during the Fall and Winter Sessions.

Drama 319 H(2S-2)**Graphics and Model Building for Theatre**

An introduction to graphic and model building techniques for the theatre designer.

Prerequisite: Drama 222 or consent of the Department.

Drama 321 H(2S-2)**Stage Management**

Principles of stage management; a stage management project related to one of the presentations in the Department's season of plays.

Prerequisite: Drama 222 or consent of the Department.

Note: This course meets for two hours per week during both the Fall and Winter Sessions.

Drama 325 H(4-0)**History of Civil Dress and Decor I**

An overview of the history of civil dress and the allied arts of architecture and decor from prehistory to the Renaissance.

Drama 329 H(4-0)**History of Civil Dress and Décor II**

An overview of the history of civil dress and the allied arts of architecture and decor from the Renaissance to contemporary times.

Prerequisite: Drama 325 or consent of the Department.

Drama 340 F(4S-0)**Seminar in Drama I**

Critical examination of each play performed in the Department's season of plays centred upon their genres and historical settings; staging requirements for contemporary productions and other works by the same authors and their contemporaries may also be studied.

Prerequisite: Drama 240 or consent of the Department.

Drama 342 F(3-0)**History of the Theatre: Origins to the Late Eighteenth Century**

Theatre as an art and social phenomenon in selected cultures, emphasizing the development of Western traditions.

Drama 344 F(3-0)**History of the Theatre: The Late Eighteenth Century to the Present**

Popular and elite traditions of theatre in Western Europe and North America.

Drama 356 F(3S-0)**Canadian Theatre and Drama**

History, literature, and cultural milieu of Canadian theatre from its colonial origins to the present day.

Drama 360 F(2S-2)**Developmental Drama I**

Explorations in personal creativity; practical experience in creative drama activity; the principles, theories, and application of creative drama.

Note: Not open to students with credit in Drama 366.

Drama 362 F(2S-2)**Theatre for Young Audiences I**

History and objectives of theatre for the young audience; practical work in the principles and techniques of acting, directing and producing plays.

Drama 364 F(2S-2)**Performance Media**

Methods of adapting alternative spaces for performance, with emphasis on non-traditional modes of production, exploration and investigation of existing hardware and software to facilitate image and sound manipulation in the creation of performance environments.

Prerequisite: Consent of the Department.

Drama 371 H(2S-2)**Introduction to Playwriting**

Directed exercises in writing for the theatre; workshop sessions for developing and reworking material.

Prerequisites: Drama 200, 222, and 240 or consent of the Department.

Drama 375 H(1.5-1.5)**Fundamentals of Puppetry**

History and development of puppetry; basic design, construction and manipulation of hand, rod and shadow puppets.

Drama 391 H(0-6)**Performance Practicum I**

Practical experience in theatrical production.

Prerequisites: Drama 200, 222, and 240 or consent of the Department.

Note: Not open to students with credit in Drama 390.

Drama 393 H(0-6)**Performance Practicum II**

Further practical experience in theatrical production.

Prerequisite: Drama 391.

Note: Not open to students with credit in Drama 390.

Drama 400 **F(3S-6)**

Advanced Acting II

Further study in the techniques of acting; performance in the Department's season of plays may be required.

Prerequisites: Drama 300 and consent of the Department.

Drama 409 **H(1-4)**

Scenic Painting

Skills and techniques of advanced scenic art; development of working aesthetic principles in producing visual art for the stage; emphasis on process in the paint shops, and on the techniques and tools of realization within constraints of deadlines and available resources.

Prerequisites: Drama 313, 315 and 319 or consent of the Department.

Drama 410 **F(2-2)**

Fundamentals of Directing

Theories and practical techniques of directing plays; students may be required to observe or assist faculty directors. Studies will be coordinated with the Department's season of plays whenever possible.

Prerequisites: Drama 200, 222, and 340 or consent of the Department.

Drama 411 **H(1-4)**

Advanced Scenic Painting

Further development of skills and techniques of advanced scenic art; emphasis on the acquisition of advanced professional skills and disciplines.

Prerequisite: Drama 409 or consent of the Department.

Drama 415 **H(2-2)**

Advanced Lighting Design and Technique I

Advanced studies in lighting design for the theatre. Studies in design and presentation for lighting various forms of contemporary theatre events and spaces.

Prerequisite: Drama 315 or consent of the Department.

Note: Not open to students with credit in Drama 426.

Drama 417 **H(2-2)**

Advanced Lighting Design and Technique II

Continuation of Drama 415. Advanced studies in lighting design for the theatre.

Prerequisite: Drama 415 or consent of the Department.

Note: Not open to students with credit in Drama 426

Drama 419 **H(2-2)**

Advanced Scene Design and Technique I

Set design and scenography for a variety of contemporary theatre forms and genres.

Prerequisite: Drama 315 or consent of the Department.

Note: Not open to students with credit in Drama 422.

Drama 423 **H(2-2)**

Advanced Scene Design and Technique II

Continuation of Drama 419 with a heightened emphasis on the interpretation of text to design.

Prerequisite: Drama 419 or consent of the Department.

Note: Not open to students with credit in Drama 422.

Drama 425 **H(2S-2)**

Advanced Costume Design and Technique I

Costume design and technique in relation to major styles of presentation.

Prerequisites: Drama 315, 319 and consent of the Department.

Drama 429 **H(2S-2)**

Advanced Costume Design and Technique II

Continuation of Drama 425, costume design and technique in relation to major styles of presentation.

Prerequisite: Drama 425.

Drama 440 **F(4S-0)**

Seminar in Drama II

Critical study of plays in the Department's season of plays suited to students in their third and fourth years; critical analysis and historical interpretation is integrated with a careful consideration of requirements for staging; plays generically or historically related may also be studied.

Prerequisite: Drama 340 or consent of the Department.

Drama 460 **F(2S-2)**

Developmental Drama II

Theory and techniques of developing limited-resource productions and collective creations; other applications of dramatic techniques are investigated.

Prerequisite: Drama 360 or consent of the Department.

Drama 462 **F(2S-2)**

Theatre for Young Audiences II

Problems of performance for young people through a study of comparative styles, research and practical projects; the rehearsal and production of scripted plays.

Prerequisite: Drama 362 or consent of the Department.

Drama 471 **H(2S-2)**

Playwriting

Intermediate studies in writing for the theatre leading to the development of a one-act or full-length piece; workshop sessions for developing and rehearsing material.

Prerequisites: Drama 371 and consent of the Department.

Drama 491 **H(0-6)**

Performance Practicum III

Further practical experience in theatrical production.

Prerequisite: Drama 393.

Note: Not open to students with credit in Drama 490.

Drama 493 **H(0-6)**

Performance Practicum IV

Further practical experience in theatrical production.

Prerequisite: Drama 491.

Note: Not open to students with credit in Drama 490.

Drama 500 **F(3S-6)**

Advanced Acting III

Interpretation of roles and special problems in performance; performance in the Department's season of plays may be required.

Prerequisites: Drama 400 and consent of the Department.

Drama 510 **F(2S-3)**

Advanced Directing

Problems in play directing; the directing of scenes and a short play; the preparation of a promptbook; history of directing; participation as an assistant to the director in the Department's season of plays may be required.

Prerequisites: Drama 410 and consent of the Department.

Drama 517 **H2S(2)**

Advanced Design for Theatre I

Advanced set, props, lighting, and costume design theory, process and technique for a variety of theatre forms and performance styles.

Prerequisite: Consent of the Department.

Drama 519 **H(2S-2)**

Advanced Design for Theatre II

Continuation of Drama 517.

Prerequisites: Drama 517 and consent of the Department.

Drama 531 **H(2S-2)**

Scene Painting I

Theory and technique of scene painting for a variety of theatre genres.

Prerequisite: Consent of the Department.

Drama 533 **H(2S-2)**

Scene Painting II

Continuation of theory and technique of scene painting for a variety of theatre genres.

Prerequisites: Drama 531 and consent of the Department.

Drama 540 **F(4S-0)**

Seminar in Drama III

Critical study at an advanced level of the dramatic metaphor as presented in the Department's season of plays; intensive focus on the historical period and theatrical genre of one or two of the season's plays especially.

Prerequisite: Drama 440 or consent of the Department.

Drama 560 **F(2S-2)**

Developmental Drama III

Comparative studies of developmental drama; intermediate project work.

Prerequisite: Drama 460 or consent of the Department.



East Asian Studies 403 H(3-0)***East Asian Perspectives on the Environment***

Focuses on traditional East Asian attitudes to the environment. Investigates the philosophical foundations, concrete measures arising from, and positive consequences of these attitudes. Outlines environmental problems in western nations, including more modern developments in East Asia, as a demonstration of the difficulty and need of contributing to restoration and preservation of the environment. Concludes with an examination of how traditional East Asian attitudes could potentially benefit the environment today.

Note: Previous course work in East Asian culture would be advantageous to the student.

Instruction offered by members of the Department of Biological Sciences in the Faculty of Science.

Department Head - D.M. Reid

† Limited amounts of non-scheduled class time involvement will be required for these courses.

Senior Courses**Ecology 413 (140 hours)*****Field Course in Ecology***

An examination of ecological principles and techniques through field exercises, including studies of terrestrial and aquatic populations, communities and ecosystems. The course is held at the Kananaskis Centre for Environmental Research in the two weeks immediately prior to the commencement of the Fall Session.

Prerequisites: Biology 313 and 315.

Note: Enrollment in this course may be limited. See explanation in the Program section of this Calendar.

†Ecology 417 H (3-3)***Aquatic Communities and Ecosystems***

Community composition and dynamics at the various trophic levels of aquatic ecosystems. Temporal and spatial changes in community composition, physical and chemical conditions, and their effects on the ecosystem. There will be a full week-end field trip.

Prerequisites: Biology 313 and 315 or consent of the Department.

Note: Enrollment in this course may be limited. See explanation in the Program section of this Calendar.

Ecology 419 H (3-3)***Terrestrial Communities and Ecosystems***

Processes and patterns in above- and below-ground terrestrial communities. Ecosystem level processes in fluxes of carbon and nutrients. Methods for assessing biomass, productivity and biochemical pathways.

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Ecology 731 H(3-0)**Advanced Plant Ecology**

Current problems and recent research in areas of particular significance. Topics will vary from year to year.

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Instruction offered by members of the Department of Economics in the Faculty of Social Sciences.

Department Head - E.A. Wilman

Junior Courses**Economics 201 H(3-1T)****Principles of Microeconomics**

Principles of consumption, production, exchange: market and firm equilibrium under different competitive conditions. These principles are applied to various contemporary problems in the Canadian economy, such as the changing structure of agriculture, foreign ownership and control, and pollution.

Economics 203 H(3-1T)**Principles of Macroeconomics**

National income determination, the monetary and fiscal policies. Contemporary problems of unemployment, inflation, economic growth, business cycles and the international economy.

Prerequisite: Economics 201 or consent of the Department.

Economics 209 H(3-1T)**(Engineering 209)****Engineering Economics**

The basic tools and methodology of engineering economic studies. Topics include investment decisions, theory of replacement, economics of scale, externalities, social decision making and government regulation. Examples are drawn from engineering projects.

Prerequisite: Registration in the Faculty of Engineering with second year standing or higher. If not registered in the Faculty of Engineering, consent of the Department of Economics.

Senior Courses**Economics 301 H(3-0)****Intermediate Economic Theory - Microeconomics I**

Demand, production and costs in a market economy. Pricing in perfectly and imperfectly competitive markets.

Prerequisites: Economics 201/203 or consent of the Department.

Economics 303 H(3-0)**Intermediate Economic Theory - Macroeconomics I**

Introduction to the analysis of macroeconomic issues including the causes of recessions and unemployment, the determination of exchange rates, and the effects of government policies.

Prerequisites: Economics 201/203 or consent of the Department.

Economics 305 H(3-1T)**Computational Optimization and Economic Applications I**

The use of linear optimization methods to structure and solve numerical resource allocation problems. Topics include model formulation, solution techniques, microcomputing software and duality. Numerous practical applications to economic, management and energy problems, including cost-benefit analysis.

Prerequisite: Economics 201 or consent of the Department.

Economics 307 H(3-1T)**Computational Optimization and Economic Applications II**

Extensions of methods and models of linear optimization, including nonlinear optimization, with applications to economic, management, and energy problems.

Prerequisite: Economics 305 or consent of the Department.

Economics 309 H(3-0)**Microeconomics for Economics and Society**

Microeconomic concepts, including consumer behaviour, firm behaviour, competitive markets,

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62eh Prerequisite of Corequisites Economics 201 or consent of the Department.

Prerequisite: Economics 201/203 or consent of the Department.

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Economics 341 H(3-0)

Money and Banking

Operation of financial markets and institutions: the principles of money creation, interest rate determination, and central banking.

Prerequisites: Economics 201/203 or consent of the Department.

Economics 345 H(3-0)

Economic Analysis of Law

An introduction to the relationship between law and economics. Economic theory will be used to analyse property and tort law.

Prerequisite: Economics 201 or consent of the Department.

Economics 349 H(3-0)

The Economics of Social Problems

Contribution that economic analysis can make to the understanding of selected current social issues such

Economics 415 H(3-0)***Seminar in Contemporary Policy Issues I***

An examination of selected problems and policies, with special emphasis on microeconomic issues.

Prerequisites: Economics 303 and 315; or consent of the Department.

Prerequisite or Corequisite: Economics 357.

Economics 417 H(3-0)***Seminar in Contemporary Policy Issues II***

An examination of selected problems and policies, with special emphasis on macroeconomic issues.

Prerequisites: Economics 301 and 315; or consent of the Department.

Prerequisite or Corequisite: Economics 359.

**Economics 419 H(3-0)
(formerly Economics 317)*****Introduction to Econometrics II***

Econometric techniques emphasizing estimation of sets of interdependent economic relationships. Topics include construction of economic models, simultaneous equation problems, alternate estimation procedures, simulation models, econometric theory in matrix form, use of computer packages and solution of practical econometric problems.

Prerequisites: Economics 315; Mathematics 211; Economics 301 and 303 or consent of the Department.

Economics 423 H(3-0)***International Macroeconomics***

Foreign exchange markets, and international macroeconomic connections with trade in assets as well as goods and services. Topics include: alternative exchange rate regimes; monetary and fiscal policy responses to problems of unemployment and inflation; balance of payments adjustment mechanisms; international debt; and Euro-dollar markets.

Prerequisite: Economics 303 or 313 or consent of the Department.

Economics 425 H(3-0)***International Trade***

The general equilibrium treatment of the gains from trade, comparative advantage and trade patterns provides a basis for examining topics such as: trade policy under imperfect competition, trade policy and the environment, trade policy and economic growth, and preferential trading arrangements.

Prerequisite: Economics 309 or 357 or consent of the Department, or Corequisite: Economics 357. Completion of Economics 321 is recommended but not necessary.

Economics 431 H(3-0)***The Canadian Labour Market***

Economic analysis of migration, labour force participation, education, fertility, manpower policy, and the measurement and treatment of unemployment.

Prerequisites: Economics 301 or 309; and 303 or 313; or consent of the Department.

Economics 433 H(3-0)***Wage Determination***

Wage and income determination; policies dealing with employment discrimination; and income redistribution.

Prerequisite: Economics 301 or 309 or consent of the Department.

Prerequisites: Successful completion of all other required courses in the Applied Energy Economics program with the exception of Economics 492, or consent of the Department.

Note: Normally only available to students registered in the Applied Energy Economics program.

Economics 499 **H(3-0)**

Selected Topics in Economics II

A decimalized course in which topics will vary from year to year. Consult the timetable or the Department for the topics available in a given year.

Prerequisites: Economics 301 or 309; and Economics 303 or 313; or consent of the Department.

MAY BE REPEATED FOR CREDIT

Economics 521 **H(3-0)**

Quantitative Economic Analysis

Mathematical techniques of economic analysis. Required of and normally restricted to Master of Economics students.

Prerequisite: Consent of the Department.

Note: Credit for both Economics 521 and 387 will not be allowed.

Economics 523 **H(3-0)**

Econometrics

Introduction to statistical techniques as they are used in Economics. Topics include: estimation and testing of hypotheses, single and simultaneous equation regression analysis, least squares and maximum likelihood estimation, and solution of practical econometric problems. Matrix notation is employed. Required of and normally restricted to Master of Economics students.

Prerequisite: Statistics 213 or equivalent; or consent of the Department.

Prerequisite or Corequisite: Economics 521.

Note: Credit for both Economics 523 and 315 will not be allowed.

Economics 527 **H(3-0)**

World Oil Economics

Analysis of the world oil industry in the post war period.

Prerequisites: Economics 301 or 309; and 303 or 313; or consent of the Department.

Economics 529 **H(3-0)**

Microeconomics with Applications

Intermediate microeconomic theory and welfare economics with special emphasis on applications. Topics include: demand theory and measurement; production and cost theory and measurement; market structure and pricing behaviour; pricing practices; regulation; antitrust law; and capital budgeting. Normally restricted to Master of Economics students.

Prerequisite: Consent of the Department. It is recommended that Economics 521 be taken prior to or concurrently with Economics 529.

Note: Credit for both Economics 529 and either 309 or 357 will not be allowed.

Economics 531 **H(3-0)**

Macroeconomics with Applications

Intermediate macroeconomic theory with special emphasis on applications. Topics include: basic theories concerning employment, output, interest

rates, the price level, business cycles and growth; contemporary thought on macro problems such as unemployment, inflation, and balance of payments disequilibrium; and Canadian macroeconomic policy issues. Normally restricted to Master of Economics students.

Prerequisite: Consent of the Department. It is recommended that Economics 521 be taken prior to Economics 531.

Note: Credit for both Economics 531 and either 313 or 359 will not be allowed.

Economics 537 **H(3-0)**

Theory and Policy of Economic Development

Classical and Marxian theories of economic development, and theories of dual economy, balanced and unbalanced growth, population, choice of techniques, etc. A critical examination of the current national and international policies affecting economic development of developing countries will also be undertaken.

Prerequisites: Economics 301 or 309; and 303 or 313; or consent of the Department.

Economics 541 **H(3-0)**

Monetary Theory

A survey of recent work in monetary theory with primary emphasis on financial issues.

Prerequisites: Economics 341 and 357 and 359; or consent of the Department.

Prerequisite or Corequisite: Economics 315.

Economics 557 **H(3-0)**

Topics in Economic Theory I

Topics in microeconomic theory such as welfare economics and general equilibrium theory.

Prerequisites: Economics 357 and 389; or consent of the Department.

Economics 559 **H(3-0)**

Topics in Economic Theory II

Topics in macroeconomic theory such as consumption and growth.

Prerequisites: Economics 315 and 359 and 389; or consent of the Department.

Economics 571 **H(3-0)**

Competition Policy

The law and economics of competition policy. An examination of the economics, jurisprudence and history of competition policy towards mergers, price fixing, vertical restraints, and monopolization, primarily in Canada and the United States.

Prerequisite: Economics 471.

Economics 575 **H(3-0)**

Economics of Natural Resources II

A variety of topics in the area of Natural Resource Economics. Resource production and exhaustion, resources management and conservation, and substitutions between natural resources may be examined.

Prerequisite: Economics 475 or consent of the Department.

Economics 599 **H(3-0)**

Selected Topics in Economics III

A decimalized course in which topics will vary from year to year. Consult the timetable or the Department for the topics available in a given year.

Prerequisites: Economics 357 and 359; or consent of the Department.

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Graduate Courses

Students are required to have departmental consent before registering in any of the following courses:

Economics 601 **H(3-0)**

Applied Economics

Provides students with an opportunity to apply microeconomic and macroeconomic theories to issues that are of interest to professional economists.

601.01. History of Economic Thought

601.02. Financial Economics

601.03. Cost-Benefit Analysis

601.04. Public Economics

Prerequisites: Economics 529 and 531; or consent of the Department.

Note: Restricted to Master of Economics students.

Economics 605 **H(3-0)**

Advanced Computational Optimization and Economic Applications I

Economics 607 **H(3-0)**

Advanced Computational Optimization and Economic Applications II

Prerequisite: Economics 605.

Economics 611 **H(3-0)**

Independent Study

MAY BE REPEATED FOR CREDIT

Economics 615 **H(3-0)**

Advanced Econometrics I

Economics 617 **H(3-0)**

Advanced Econometrics II

Prerequisite: Economics 615 or consent of the Department.

Economics 619 **H(3-0)**

Economics of International Commercial Policy

Economics 621 **H(3-0)**

International Trade

Economics 623 **H(3-0)**

International Finance

Economics 625 **H(3-0)**

The Economics of the Petroleum Industry

Economics 627 **H(3-0)**

Energy in the Production Sector of the Economy

Economics 633 **H(3-0)**

The Nature and Structure of the Labour Market

Economics 635 **H(3-0)**

Regulatory Economics

Economics 637 H(3-0)

Advanced Development Economics

Economics 641 H(3-0)

Monetary and Financial Economics

Economics 653 H(3-0)

Public Revenue Analysis

Economics 655 H(3-0)

Cost/Benefit Analysis

Educational Research 613	H(3-0)	practices. Emphasis on the role of oral language in classrooms and the teaching of writing.	Educational Research 673	H(3-0)
<i>Change and Innovation in Education</i>			<i>Instructional Design</i>	
Examines both traditional and contemporary research literature relevant to change and innovation in educational settings.			Integration of theory and practice associated with the selection and sequencing of content across the instructional spectrum and the matching of instructional strategies to characteristics of learners and content.	
Educational Research 615	H(3-0)		Educational Research 675	H(3-0)
<i>Organizational Behaviour in Education</i>			<i>Principles of Instructional Development</i>	
The behaviour of individuals and groups in the organizational context: Schools and educational organizations as a special case.			Topics include the examination of a variety of instructional development models, the systems approach to developing instruction, front-end analysis and needs assessment, risk analysis, constraint analysis, resource analysis, task analysis, and evaluation.	
Educational Research 617	H(3-0)		Educational Research 677	H(3-0)
<i>Organizational Theory and Analysis in Education</i>			<i>Distributed Learning</i>	
Human organization as the setting for the delivery of educational services.			Examination of distributed teaching and learning	
Educational Research 619	H(3-0)			
<i>Special Topics in Educational Leadership</i>				
Consult current timetable for offerings.				
MAY BE REPEATED FOR CREDIT				
Educational Research 621	H(3-0)			
<i>Assessment of Classroom Learning</i>				
Examines both traditional and emerging assessment techniques, including Performance Assessment and Learning Portfolios, for examining students' learning outcomes.				
Educational Research 625	H(3-0)			
<i>Teacher Evaluation</i>				
Examines both traditional and emerging techniques, e.g. Portfolios, for assessing teacher performance.				
Educational Research 627	H(3-0)			
<i>Program Evaluation</i>				
Systematically examines the evaluation enterprise including concepts, procedures and uses of evaluation.				
Prerequisite: Educational Research 601 or equivalent.				
Educational Research 629	H(3-0)			
<i>Special Topics in Assessment/Evaluation</i>				
Consult current timetable for offerings.				
MAY BE REPEATED FOR CREDIT				
Educational Research 640	F(3-0)			
<i>Teaching and Learning Across the Curriculum</i>				
Develops a critical foundation for understanding and promoting active learning across the subject areas.				
Note: Not open to students with credit in Educational Research 649.03 or 649.04.				
Educational Research 641	H(3-0)			
<i>Research on the Reading Process</i>				
Examination and criticism of competing theoretical discourses about the teaching and learning of reading in the elementary school.				
Educational Research 643	H(3-0)			
<i>Foundational Research in Language Arts Teaching</i>				
Theory, research, and advocated instructional				
		Educational Research 645	H(3-0)	
		<i>Implications of Literacy</i>		
		Exploration of the implications of literacy on both a societal and individual level; attention to specialized literacies of our culture.		
		Note: Not open to students with credit in Educational Research 649.05 or 699.44.		
		Educational Research 649	H(3-0)	
		<i>Special Topics in English Language Education</i>		
		MAY BE REPEATED FOR CREDIT		
		Educational Research 651	H(3-0)	
		<i>Philosophy of Education</i>		
		Philosophical topics in the context of education. Consult current timetable for offerings.		
		MAY BE REPEATED FOR CREDIT		
		Educational Research 653	H(3-0)	
		<i>Sociology of Education</i>		
		Sociological topics in the context of education. Consult current timetable for offerings.		
		MAY BE REPEATED FOR CREDIT		
		Educational Research 655	H(3-0)	
		<i>Comparative Education</i>		
		Topics in comparative education. Consult current timetable for offerings.		
		MAY BE REPEATED FOR CREDIT		
		Educational Research 657	H(3-0)	
		<i>Culture and Gender Studies</i>		
		Culture and gender topics in the context of education. Consult current timetable for offerings.		
		MAY BE REPEATED FOR CREDIT		
		Educational Research 659	H(3-0)	
		<i>History of Education</i>		
		Historical topics in the context of education. Consult current timetable for offerings.		
		MAY BE REPEATED FOR CREDIT		
		Educational Research 667	H(3-0)	
		<i>Second Language Reading and Writing</i>		
		Research and practice in second language reading and writing; instructional techniques for specific audiences; theories of reading and writing.		
		Educational Research 669	H(3-0)	
		<i>Aspects of Second Language and Culture</i>		
		Introduction to research and issues on various aspects of second language and culture.		
		MAY BE REPEATED FOR CREDIT		
		Educational Research 671	H(3-0)	
		<i>Conceptualizing Educational Technology</i>		
		Seminar to familiarize students with the terrain of educational technology.		

responses of first order RL and RC circuits. Natural

Electrical Engineering 563 H(3-1T-2)

Biomedical Signal Analysis

Introduction to the electrocardiogram, electroencephalogram, electromyogram, and other diagnostic signals. Computer techniques for processing and analysis of biomedical signals. Pattern classification and decision techniques for computer-aided diagnosis. Case studies from current applications and research.

Prerequisite: Electrical Engineering 471.

Electrical Engineering 565 H(3-1T-3/2)

Digital Integrated Electronics

Linear-wave shaping, nonlinear transfer function

a faculty member. The topic would normally involve a literature review, theoretical and experimental or computer work. Submission and defence of a written formal report is required.

Prerequisite: Formal approvals from the project supervisor and course coordinator(s).

Graduate Courses

Registration in all courses requires the approval of the Department of Electrical and Computer Engineering.

Electrical Engineering 601 **H(3-1.5)**

Power System Operation

Energy transfer in power systems; real and reactive power flows; VAR compensation. Power system control, interconnected operation. Power system stability, techniques of numerical integration. Load representation, power quality. Computational paradigms for typical power system problems. Computer simulation of representative power system problems.

Electrical Engineering 603 **H(3-0)**

Rotating Machines

General theory of rotating machines providing a unified approach to the analysis of machine performance. General equations of induced voltage and torque. Transient performance of machines.

Electrical Engineering 605 **Q(1.5S-0)**

Research Seminar

Reports of studies of the literature or of current research. This course is compulsory for all full-time graduate students.

NOT INCLUDED IN GPA

Electrical Engineering 607 **Q(1.5S-0)**

Research Seminar

Reports of studies of the literature or of current research. This course is compulsory for all full-time graduate students.

NOT INCLUDED IN GPA

Electrical Engineering 609 **Q(3-1)**

Special Topics

Designed to provide graduate students, especially at the PhD level, with the opportunity of pursuing advanced studies in particular areas under the direction of a faculty member.

MAY BE REPEATED FOR CREDIT

Sampling of continuous-time signals, decimation and interpolation. Fundamentals of multirate systems, special filters and filter banks. The z-transform, transform analysis of linear time-invariant systems. Structures for discrete-time systems, FIR and IIR structures, finite-precision arithmetic effects. Filter design techniques. The discrete Fourier transform. Discrete Hilbert transforms.

Electrical Engineering 659 **H(3-1)**

Active-RC and Switched-Capacitor Filter Design

The filter design problem; operational amplifier characteristics; cascade methods of RC-active filter design; filter design with the active biquad; active filter design based on a lossless ladder prototype. Switched-capacitor (SC) integrators; design of cascade, ladder, and multiple feedback SC filters; nonideal effects in SC filters; scaling of SC filters; topics in fabrication of SC filters.

Electrical Engineering 671 **H(3-1)**

Adaptive Signal Processing

Fundamentals: Performance objectives, optimal filtering and estimation, the Wiener solution, orthogonality principle. Adaptation algorithms: MSE performance surface, gradient search methods, the Widrow-Hoff LMS algorithm, convergence speed and misadjustment. Advanced techniques: recursive least-squares algorithms, gradient and least-squares multiple filter, frequency domain algorithms, adaptive pole-zero filters. Applications: system identification, channel equalization, echo cancellation, linear prediction, noise cancellation, speech.

Electrical Engineering 673 **H(3-1)**

Wireless Communications Engineering

The basics of mobile radio telephone: mobile telephone frequency channels, components of mobile radio, objectives of mobile telephone systems, major problems and tools available. The mobile radio environment: fading and propagation loss, propagation loss prediction, channel and signal models, fading statistics, classification of fading channels. Methods of reducing fading effects: diversity techniques and diversity combining methods. Signaling over fading channels. Frequency reuse schemes: cellular concept, mobile radio interference, FDMA, TDMA, and spread spectrum techniques. Portable systems, air-to-ground systems, and land mobile/satellite systems, processing.

Electrical Engineering 675 **H(3-1)**

Introduction to Data Communications

Probability and Stochastic Processes. Elements of a digital communication system and information theory. Channel models and capacity. Representation of Bandpass signals and systems. Representation of finite energy signals by orthonormal expansions. Representation and spectral characteristics of digitally modulated signals. Characterization of the signal waveforms. Optimum demodulation for completely known signals and signals with random phase in additive Gaussian noise. Carrier and symbol synchronization.

Electrical Engineering 677 **H(3-1)**

Advanced Data Communications

Efficient signaling with coded waveforms. Linear block codes. Convolutional codes. Trellis coded modulation and Ungerboeck codes. Digital signaling over a bandwidth constrained linear filter channel. Signal design for bandlimited channels. Linear equalization. Decision feedback equalization. Maximum likelihood sequence estimation for ISI

corrupted signals. Digital signaling over fading multipath channels. Binary signaling over a frequency nonselective slowly fading channel. Diversity techniques for fading multipath channels. Spread spectrum signals for digital communications. Direct sequence and frequency hopped spread spectrum signals.

Electrical Engineering 687 **H(3-1)**

Switch Mode Power Converters

Design and analysis of dc-to-dc and ac-to-ac single-phase power converters. Device characteristics. Dc-to-dc topologies, dc-to-ac topologies and ac-to-ac topologies. Linearized models. Classical feedback control; introduction to state-space analysis methods. Input harmonic analysis, output harmonic analysis, and techniques to obtain unity input power factory.

Electrical Engineering 697 **H(3-1)**

Digital Image Processing

Image formation and visual perceptual processing. Digital image representation. Two dimensional Fourier transform analysis. Image enhancement and restoration. Image reconstruction from projections. Image coding for data compression and transmission. Introduction to image understanding and computer vision.

Electrical Engineering 698 **F(0-4)**

Graduate Project

Individual project in the student's area of specialization under the guidance of the student's supervisor. A written proposal, one or more written progress reports, and a final written report are required. An oral presentation is required upon completion of the course. Open only to students in the MEng Courses Only Route.

Electrical Engineering 699 **H(3-1)**

Multidimensional Signal Processing

Characterization of multidimensional (MD) signals, the MD Laplace, Fourier and Z transforms. Practical analog and digital signals and their MD energy density spectra. Aliasing, convolution, boundary conditions, causality, and stability in MD. Characterization of linear shift-invariant systems using MD transform transfer functions. State variable representations of MD systems. Elementary decompositions of MD transfer functions and bounded-input bounded-output stability. Design and implementation of MD digital filters. Applications of MD signal processing in engineering systems. Two- and three-dimensional digital signal processing in seismic, sonar, imaging and broadcast television.

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Energy and the Environment 619 H(3-0)***Environmental Law in the Energy Sector***

Legal systems, nature and sources; international environmental law and its implementation; fundamental legal concepts including jurisdiction, procedural fairness, liability, property and contract; environmental regulatory systems and alternative instruments; judicial review; enforcement and compliance; non-judicial dispute resolution.

Energy and the Environment 621 H(3-0)***Environmental Management Tools in the Energy Sector***

Environmental management tools including strategic policies; structures; impact and production assessment; audits; indicators and reporting; life cycle assessment; risk management; and economic instruments.

Energy and the Environment 623 H(3-0)***Strategic Environmental Planning for Energy Organizations***

A strategic approach to managing environmental and social issues facing energy organizations and its economic rationale in a competitive global market place.

Energy and the Environment 625 H(3-0)***Interdisciplinary Team Project***

An environmental situation or issue which students are expected to research and prepare a plan to address.

Energy and the Environment 627 H(3-0)***Major Project***

Completion and presentation of an individual project that is related to an environmental issue or problem faced by the sponsoring energy enterprise or government department in the country that the participant comes from. Participants in the Master's program will define the project in advance of the fourteen months program and will work on the major project throughout the fourteen months of the program.

Energy and the Environment 629 H(3-0)***Advanced Seminars***

MAY BE REPEATED FOR CREDIT

NOT INCLUDED IN GPA

Energy and the Environment 631 H(3-0)***Introduction to Energy and the Environment in Latin America***

Introduction to energy project management in the Latin American and Caribbean (LAC) regions with a focus on sustainable development and environmental management strategies.

Prerequisite: Consent of the Program Director.

Energy and the Environment 699 H(3-0)***Topics in Energy and the Environment***

Intensive study of selected topics in energy and the environment and related subjects. Course will reflect changing content needs and faculty interests.

Prerequisite: Consent of the Program Director.

MAY BE REPEATED FOR CREDIT

Instruction offered by members of the Faculty of Engineering.

Associate Dean (Academic & Planning) - L.E. Turner

Junior Courses**Engineering 201 H(3-1.5T-3/2)*****Behaviour of Liquids, Gases and Solids***

An introduction to the behaviour of fluids and solids; phase transformations, the phase rule and phase diagrams. Ideal and real gases; equations of state and their engineering applications; simple kinetic theory; transport properties of fluids. Liquid state; vapor pressure; shear behaviour; flow of fluids in pipelines. Solids; crystalline and non-crystalline structure; non equilibrium solid phases; electrical and thermal conductivity; dislocations; stress and strain; creep; fracture.

Engineering 205 H(3-1.5T)***Engineering Mechanics I***

Statics: Force vectors; equilibrium of particles in two and three dimensions; force system resultants; equilibrium of a rigid body in two and three dimensions; trusses; frames, machines and beams. Dynamics: Kinematics and kinetics of particles.

Note: Not open to students with credit in Engineering 203.

Engineering 209 (Economics 209) H(3-1T)***Engineering Economics***

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Engineering 335 H(3-2)**Computing for Engineers II**

Pointers and references, memory models and memory management. Abstract data types (ADTs); implementation of ADTs as classes. Introduction to object-oriented programming: inheritance and polymorphism. Introduction to recursion. Aspects of floating-point computation

Prerequisite: Engineering 233.

Engineering 349 H(3-1.5T)**Engineering Mechanics II**

Review of Mechanics I fundamentals. Mass Centre, moments of inertia; composite bodies. Kinematics and kinetics of rigid bodies. Work and energy principles. Friction and work of friction. Conservative systems. Impulse and momentum.

Prerequisites: Engineering 205, Applied Mathematics 217 and 219.

Engineering 391 Q(1.5-0)**Advanced Topics I**

Advanced topics in engineering science and design. Registration in the course requires approval of the Associate Dean (Academic & Planning), Faculty of Engineering.

MAY BE REPEATED FOR CREDIT

Engineering 393 H(3-0)**Advanced Topics II**

Advanced topics in engineering science and design. Registration in the course requires approval of the Associate Dean (Academic & Planning), Faculty of Engineering.

MAY BE REPEATED FOR CREDIT

Engineering 407 H(3-2)**Numerical Methods in Engineering**

The theory and use of numerical computational procedures to solve engineering problems. Methods for: solution of nonlinear equations, solution of simultaneous linear equations, curve fitting, solution of the algebraic eigenvalue problem, interpolation, differentiation, integration, solution of ordinary differential equations and solution of partial differential equations are included. The laboratory includes the application to elementary problems and the computer solution of comprehensive engineering problems.

Prerequisite: Engineering 233 and Applied Mathematics 307.

Engineering 481 H(3-1.5S)**Technology and Society**

An interpretive course on the interrelationship between technology and society. The first part of the course surveys significant historical developments within disciplinary areas such as energy, materials, production processes, structures, transport, communications, and computation. Sequence within each area: discovery, development, application, impact, future. Social and economic consequences are also considered. The latter part of the course explores contemporary problems of society and technology.

Note: Available to students registered in other faculties as well as third-year or fourth-year Engineering students. This course does not presuppose any formal background in Engineering or Science.

Engineering 513 H(3-0)**The Role and Responsibilities of the Professional Engineer in Society**

The professional duties and responsibilities of the engineer as they relate to society. Ethics and the engineering profession. Public and worker safety and health. Design for safety. Sustainable development. The engineer and the environment. Environmental stewardship. Essentials of leadership. Gender issues. Employment equity. Fundamentals of Engineering Law. Professional organizations. The Engineering Professions Act.

Graduate Courses**Engineering 683 H(3-0)****Special Problems in Environmental Engineering**

Designed to provide graduate students with the opportunity of pursuing advanced studies in Engineering for the Environment under the direction of one or more faculty members. Students will be required to consider problems of an advanced nature.

Engineering 685 H(0-5)**Research Project in Environmental Engineering**

Designed to provide individual students or small groups of students, possibly with different backgrounds, with the opportunity to work on a research project under the supervision of one or more faculty members. Industrial representatives may assist in the selection of suitable research projects and actively participate as advisors. A written proposal, one or more progress reports, and a final report are required. Open only to students in the MEng (Courses Only) route.

Instruction offered by members of the Department of English in the Faculty of Humanities.

Department Head - S. Rudy

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English 312 F(3-0)

Shakespeare

A consideration of the development and variety of Shakespeare's dramatic art.

Prerequisite: One full-course equivalent of English and/or Comparative Literature, or consent of the Department.

English 318 F(3-0)

English 605 H(3-0)

Studies in National or International Literatures
MAY BE REPEATED FOR CREDIT

English 607 H(3-0)

Theoretical and Cultural Studies
MAY BE REPEATED FOR CREDIT

English 609 H(3-0)

Studies in a Literary Period
MAY BE REPEATED FOR CREDIT

English 612 F(3-0)

Studies in Medieval and Renaissance Literature
MAY BE REPEATED FOR CREDIT

English 618 F(3-0)

Studies in Restoration and Eighteenth-Century Literature
MAY BE REPEATED FOR CREDIT

English 620 F(3-0)

Studies in Romantic Literature
MAY BE REPEATED FOR CREDIT

English 622 F(3-0)

Studies in Nineteenth-Century Literature
MAY BE REPEATED FOR CREDIT

English 624 F(3-0)

Studies in Modern Literature
MAY BE REPEATED FOR CREDIT

English 670 F(3-0)

Studies in American Literature
MAY BE REPEATED FOR CREDIT

English 676 F(3-0)

Studies in Canadian Literature
MAY BE REPEATED FOR CREDIT

English 680 F(3-0)

Studies in Literary Criticism
MAY BE REPEATED FOR CREDIT

English 684 F(3-0)

Special Topics
MAY BE REPEATED FOR CREDIT

English 696 F(1-0)

Studies in Bibliography, Research Methods, and Palaeography

Required of all graduate students who have not had an equivalent course.

NOT INCLUDED IN GPA

English 698 F(2-1T-1)

Studies in Creative Writing

Note: This course is double-numbered with English 598 (which will have separate and less-strenuous student expectations). Though 598 and 698 may not

both be counted for graduate credit, a student may take 598 as an undergraduate student and 698 as a graduate student in English.

Note: By mid-August, prospective students must submit a portfolio of their own work for evaluation before consent to register for this course will be given. Details of this procedure are available from the Department of English.

MAY BE REPEATED FOR CREDIT

Admission to English Language Foundation Program courses is restricted to students whose native language is not English. Guidelines for admission to this program can be found in the Academic Regulations section of this Calendar.

Introductory Courses

English Language Foundation Program 150 F(10-3)

Introduction to Writing/Grammar

Strategies to improve skills in written English. Concentrates on the formation of sentences and on the basic formation of the expository paragraph. Acquisition and use of grammatical structures to improve accuracy in writing English.

Prerequisite: Proof of English as a Second Language training with results at high intermediate level.

Corequisites: English Language Foundation Program 153, 157.

Note: Not available for credit towards a degree/diploma program.

English Language Foundation Program 153 H(5-1.5)

Introduction to Reading

Strategies for reading and understanding academic texts written in English.

Prerequisite: Proof of English as a Second Language training with results at high intermediate level.

Corequisites: English Language Foundation Program 150, 157.

Note: Not available for credit towards a degree/diploma program.

English Language Foundation Program 157 H(5-1.5)

Introduction to Listening/Speaking

English language listening and speaking skills needed to function in a Canadian cultural and educational setting.

Prerequisite: Proof of English as a Second Language training with results at high intermediate level.

Corequisites: English Language Foundation Program 150, 153.

Note: Not available for credit towards a degree/diploma program.

Level 1 Courses

English Language Foundation Program 160 F(10-3)

Writing English/Grammar 1

Strategies to improve skills in written English. Concentrates on paragraphs and short essays. Use of grammatical structures to improve accuracy in writing English.

Prerequisite: Evidence of high Intermediate to low Advanced English language proficiency.

Corequisites: English Language Foundation Program 163, 167.

Note: Not available for credit towards a degree/diploma program.

English Language Foundation Program 163 H(5-1.5)

Reading English 1

Strategies for reading and understanding academic texts written in English.

Prerequisite: Same as English Language Foundation Program 160.

Corequisites: English Language Foundation Program 160, 167.

Note: Not available for credit towards a degree/diploma program.

English Language Foundation Program 167 H(5-1.5)

Listening/Speaking English 1

English language listening and speaking skills needed in an academic setting.

Prerequisite: Same as English Language Foundation Program 160.

Corequisites: English Language Foundation Program 160, 163.

Note: Not available for credit towards a degree/diploma program.

Level 2 Courses

English Language Foundation Program 170 F(10-3)

Writing English 2

Strategies for writing essays and research papers in English. A continuation of English Language Foundation Program 160. Includes techniques for researching topics, organizing ideas, revising and editing written work, self-evaluation and peer review/discussion.

Prerequisite: Low Advanced to Intermediate Advanced English language proficiency as demonstrated by one of the following: (1) Successful completion of English Language Foundation Program 160, 163, and 167; or (2) Entrance Level II performance on the English Language Foundation Program assessment.

Corequisites: English Language Foundation Program 173, 177.

Note: Not available for credit towards a degree/diploma program. Students may take one credit half course, upon approval, while enrolled in Level 2.

English Language Foundation Program 173 H(5-1.5)

Reading English 2

A continuation of English Language Foundation Program 163. Provides strategies for increasing vocabulary and reading speed. Develops skills in recognizing textual patterns, drawing conclusions, and making inferences.

Prerequisite: Same as English Language Foundation Program 170.

Corequisites: English Language Foundation Program 170, 177.

Note: Not available for credit towards a degree/diploma program. Students may take one credit half course, upon approval, while enrolled in Level 2.

English Language Foundation Program 177 H(5-1.5)**Listening /Speaking English 2**

A continuation of English Language Foundation Program 167. Concentrates on discussion and oral presentation skills.

Prerequisite: Same as English Language Foundation Program 170.

Corequisites: English Language Foundation Program 170, 173.

Note: Not available for credit towards a degree/diploma program. Students may take one credit half course, upon approval, while enrolled in Level 2.

Level 3 Courses

English Language Foundation Program 180 F(10-3)**Writing English 3**

Writing focuses on developing research skills and perfecting essay writing.

Prerequisite: Intermediate Advanced English language proficiency as demonstrated by one of the following: (1) Successful completion of English Language Foundation Program 170, 173 and 177; or (2) Entrance Level III performance on the English Language Foundation Program assessment.

Corequisites: English Language Foundation Program 183, 187.

Note: Not available for credit towards a degree/diploma program. Students may take one credit half course, upon approval, while enrolled in Level 3.

English Language Foundation Program 183 H(5-1.5)**Reading English 3**

A continuation of English Language Foundation Program 173. Students select texts based upon individual interests.

Prerequisite: Same as English Language Foundation Program 180.

Corequisites: English Language Foundation Program 180, 187.

Note: Not available for credit towards a degree/diploma program. Students may take one credit half course, upon approval, while enrolled in Level 3.

English Language Foundation Program 187 H(5-1.5)**Listening/Speaking English 3**

Unites speaking, listening, and reading by discussion in a seminar format based upon texts selected by students.

Prerequisite: Same as English Language Foundation Program 180.

Corequisites: English Language Foundation Program 180, 183.

Note: Not available for credit towards a degree/diploma program. Students may take one credit half course, upon approval, while enrolled in Level 3.

permission of the Associate Dean (Undergraduate Programs) as appropriate, upon the recommendation of the Instructor of the course. However, should a student fail to achieve satisfactory standing in any course for which the stated prerequisite(s) is (are) lacking, he/she may be required to successfully complete the stated prerequisite(s) prior to being permitted to repeat the course. Students are required to have consent of the Haskayne School of Business Office before registering in 600-level courses offered by the Haskayne School of Business.

Junior Course**Entrepreneurship and Innovation 201 H(3-2)****Introduction to Business Venturing**

Introduces students to the various management disciplines from the perspective of creating a new business venture. The primary learning methodology is through a project in which students identify a business opportunity, research the opportunity, write a business plan for the business and present the plan in class.

Note: This course is not available for credit towards the Bachelor of Commerce or Minor in Management and Society.

Senior Courses**Entrepreneurship and Innovation 381 H(3-0)****Principles of Entrepreneurship**

Overview of the process of entrepreneurship with focus on the role of the entrepreneur in new venture initiative and development. Application of knowledge of the processes involved in idea generation and evaluation ending in the technical, market, financial and human resource feasibility of a concept.

Prerequisite: Second year standing or Entrepreneurship and Innovation 201 or consent of the Haskayne School of Business.

Entrepreneurship and Innovation 401 H(3-0)**Opportunity Identification**

Application of knowledge of the processes involved in idea generation and evaluation ending in the technical, market, financial and human resource feasibility of a concept. Critical literature will be reviewed as it applies to the early stages of concept development and evaluation.

Prerequisites: Third year standing and Entrepreneurship and Innovation 201 or 381 or consent of the Haskayne School of Business.

Entrepreneurship and Innovation 403 H(3-0)**New Venture Planning**

A project based course in developing and writing a business plan for an existing and/or growth oriented venture. Focus will be given to the content, form and uses of a formal business plan.

Prerequisites: Third year standing and Entrepreneurship and Innovation 201 or 381 or consent of the Haskayne School of Business.

Entrepreneurship and Innovation 405 H(3-0)**New Venture Start-Up**

Application of the strategies and tactics for the creation and growth of potential new ventures. Students will address key questions in bringing together critical resources to launch a venture, review important empirical research in the field and participate in project work.

Prerequisites: Third year standing and Entrepreneurship and Innovation 201 or 381 or consent of the Haskayne School of Business.

Entrepreneurship and Innovation 499 H(3-0)**Family Business Management**

Explores the functions, issues, operations, and dynamics of family businesses. Topics include, but are not limited to the strengths and weaknesses of family businesses, managing family business conflict, management succession, professionalization, and strategic planning. The pedagogy of the course relies on field projects, discussions of readings and cases, and guest speakers.

Prerequisite: Third year standing.

Note: Credit for both Entrepreneurship and Innovation 499 and Strategy and Global Management 559.09 will not be allowed.

Entrepreneurship and Innovation 559 H(3-0)**Selected Topics in Entrepreneurship and Innovation**

Investigation of selected topics related to entrepreneurship, venture development and family business, emphasizing the practical application of theory and principles to actual business situations and venture opportunities.

Prerequisite: Third year standing.

MAY BE REPEATED FOR CREDIT

Graduate Courses**Entrepreneurship and Innovation 781 H(3-0)****Introduction to Entrepreneurship**

An experience based course covering the prestart-up stage of business development through group projects and case studies designed to provide experience based skill development in creativity, idea generation, and feasibility analysis.

Entrepreneurship and Innovation 783 H(3-1)**Opportunity Development**

A project and case based course designed to explore concepts of opportunity development.

Entrepreneurship and Innovation 785 H(3-0)**Venture Development**

A project based course designed around the formation of business concepts in the formalization of a business plan.

Note: Credit for both Entrepreneurship and Innovation 785 and Management Studies 797.81 will not be allowed.

Entrepreneurship and Innovation 787 H(3-0)**Applied Business Analysis**

Approaches to advising new and existing ventures on effective venture development. Projects will involve the student conducting analysis of several ventures and providing advice to them.

Prerequisite: Marketing 601 or consent of the Haskayne School of Business.

Entrepreneurship and Innovation 797 H(3S-0)**Advanced Seminar in Venture Development****797.01. Technology Commercialization****797.02. Strategic Legal Planning for New Ventures**

Prerequisite: Consent of the Haskayne School of Business.

Instruction offered by members of the Haskayne School of Business.

Entrepreneurship and Innovation Chairperson - L. Donlevy

Note: Students have the opportunity to take courses offered by the Haskayne School of Business without the stated prerequisites, with the written

Entrepreneurship and Innovation 799 H(3S-0)**Doctoral Seminars in Venture Development****799.01. Entrepreneurship: The State of the Art****799.02. Conceptual Models and Theories of New Venture Development****799.03. Special Topics in Entrepreneurship and Innovation****799.04. Advanced Topics in Entrepreneurship**

The following list of courses, offered by members of the Faculty of Environmental Design and members of other departments in the University, is specific to the 2003-2004 academic year.

Students are advised that some of the courses listed below may not be offered in 2003-2004 if special circumstances require that they be dropped. Students should consult with their Faculty advisor before registering for any course.

Core Courses in Environmental Design are:

Environmental Design 604. Conceptual Bases of Environmental Design**Environmental Design 609. Environmental Design Practice****Environmental Design 701. Advanced Environmental Design Practice****Environmental Design 702. Advanced Environmental Design Practice****Environmental Design 711. Theoretical Basis for Interdisciplinary Intervention and Design.****Senior Courses****Environmental Design 533 H(3-0)****Introduction to Industrial Design**

Historic and conceptual frameworks of industrial design; principles of ergonomics, materials and industrial production technologies; industrial design as technique and creative process; professional perspectives. Lectures and field work. Environmental Design 533 is a prerequisite or corequisite to Industrial Design studio courses.

Environmental Design 583 H(1.5-1.5T)**Special Topics in Environmental Design**

Topics in architecture, environmental science, industrial design and planning.

MAY BE REPEATED FOR CREDIT**Environmental Design 597 Q(1.5-1.5T)****Special Topics in Environmental Design**

Topics in architecture, environmental science, industrial design and planning.

MAY BE REPEATED FOR CREDIT**Graduate Courses****Environmental Design 604 F(4.5-0)****Conceptual Bases of Environmental Design**

Conceptual frameworks for design intervention in the environment based on perspectives from the humanities, natural and social sciences of human relation to natural, social and built environments; theories and models of investigation and intervention; discussion of professional responsibilities and environmental design issues. Required course for all Environmental Design degree program students. Design Camp, for first year students, is part of the Environmental Design 604 core course.

Environmental Design 606 F(6-1)**Introduction to Environmental Science**

Study of the nature, philosophy and research of environmental science professional practice. Examines project definition, research design, scoping, business management, and regulatory and policy issues in environmental science. There is an interdisciplinary problem solving studio component. Research design and proposal writing are developed.

Note: Not open to students with credit in Environmental Design 603 or 683.13.

Note: Normally open only to students in Environmental Design degree programs and required of MEDes Environmental Science students.

Note: Full course offered in single session.

Environmental Design 609 H(0-8)**Environmental Design Practice**

Introduction to environmental design encompassing perspectives of architecture, industrial design, urban and regional planning and environmental science; communication and interdisciplinary approaches; environmental design as technique and creative process. Lectures, field and studio work.

Note: Open only to students in Environmental Design degree programs and required of all MEDes and MArch degree program students.

Note: Graded on CR/C/F basis only.

Environmental Design 615 Q(1-3)
(formerly Environmental Design Planning 615)**Introduction to Computer Visualization in Urban Design**

Introduction to computer visualization techniques with emphasis on CAD studio project.

Environmental Design 617 H(3-0)**Statistical and Empirical Methods in Industrial Design**

A broad interdisciplinary view of methods used to collect and interpret information necessary in the design and development of products. Areas dealt with include but are not limited to user needs and preferences, manufacturing processes and market investigations.

Environmental Design 621 H(3-1)**Health in the Built Environment**

Concepts of health in an environmental context; historic approaches to preventative medicine; medical basis of building-related illness; case studies in indoor air quality; strategies for prescription and design of healthy indoor environments.

Environmental Design 623 H(3-0)
(formerly Environmental Design 683.32)**Sustainability in the Built Environment**

The principle of sustainability recognizes people as temporary stewards of their environments, working toward a respect for natural systems and a higher quality of life. Examination of the built environment and the tools to achieve a stable and balanced and a regenerative ecosystem in a process of responsible consumption, wherein waste is minimized and the built environment interacts with natural environments and cycles. Healthful interior environments, resource efficiency, ecologically benign materials, renewable energies and social justice issues are examined.

Environmental Design 625 H(3-0)
(formerly Environmental Design 683.16)**Environmental Design of Wetlands and Inundated Areas**

Wetland ecology, hydrology and biogeochemical processes will be applied to management issues and design opportunities afforded by wetlands and inundated landscapes. Relationships between land use and water quality lead to consideration of the effects of point source and non-point source pollutants on natural wetlands and receiving water bodies. The effectiveness and limitations of water treatment applications of designed wetlands. Local constructed wetland projects will be used to demonstrate design concepts, regulatory issues and site-specific opportunities. Lectures, student-led seminars and interactive class design study are included.

Note: Offered in odd-even dated academic years.

Environmental Design 627 Q(1.5-1.5)**Computer Literacy in Environmental Design**

Basic computer literacy for Environmental Design students. Introduction to selected software packages of professional relevance to environmental designers.

Note: Graded on CR/C/F basis only.

Environmental Design 629 H(3-0)
(formerly Environmental Design 721)**Community Development**

Basic principles and practice of community development. A comprehensive approach to the field and discussion of a wide range of community development perspectives. Topics include community economic development, housing, tourism and cultural development.

Environmental Design 633 H(3S-0)**Environmental Reserves**

Study of National Parks and equivalent reserves throughout the world, with emphasis on those occurring in North America; an examination of the purposes and functions of such areas in historical, cultural, ecological, legal, and future perspectives; analysis of selected planning and use situations and their related institutional structures.

Note: Offered in even-odd dated academic years.

Environmental Design 635 H(3-1.5)**Computer Applications for Industrial Design**

Introduction to computer applications in Industrial Design, including computer-aided design (CAD), computer graphics, analytical and micro-computer applications. Conceptual and mathematical bases for two- and three-dimensional computer modelling. Hands-on experience with a range of CAD systems and other computer applications. Discussion of the role of computer systems in design processes.

Prerequisite: Mathematics 30 or equivalent.

Environmental Design 639 H(3-1)
(formerly Environmental Design 683.88)**Planning Theory**

An introduction to planning theory. Develops a critical awareness of key historical, theoretical, and ethical frameworks; legal, political, and economic institutions; and an understanding of their implications for Canadian planning. An integrative normative procedural approach to planning is presented, one which is appropriate for a pluralistic liberal democratic society.

Environmental Design 641 H(3-3)***Applications of Plant Ecology to Environmental Management***

Fundamental ecological concepts and their applications in Range Management and Forest Management. Range Management section covers such areas as range inventory, classification, assessment, balancing range resource with herd size, productivity and dynamics and various manipulative techniques to improve range productivity. Forest Management section deals with forest use, sustained yield concept, forest and site classification, mensuration, productivity, silviculture, crop rotations, forest planning, conservation and multiple use in forested areas. Weekend field trips to: central Alberta, central British Columbia and the Alberta foothills.

Environmental Design 645 H(0-8)***Site Planning and Design***

Site analysis, landscape potentials and constraints, development factors and criteria are discussed and applied to a human settlement project. Small and large scale projects are compared. Primarily studio project work, with lectures on methods and illustrative examples.

Prerequisite: Environmental Design Planning 615 and 633 or equivalent.

Environmental Design 647 H(3-0)***Historic Preservation: Principles and Practice***

Introduction to the concepts, approaches and practice of historic preservation from both an urban planning as well as an architectural perspective. Building conservation, historic districts, historic site development, ecomuseums, commercial area and neighbourhood revitalization are analysed for both public as well as private sector concerns. North American and European case studies are utilized.

Note: Offered in odd-even dated academic years.

Environmental Design 649 H(3-0)***Impact Assessment***

Biophysical, economic and social impact assessment will be reviewed in an integrated, interdisciplinary approach which will include lectures, studies of methodologies, theory and practical problems. Federal and various Provincial impact assessment policies and procedures will be considered.

Environmental Design 685 H(3-0)**Industrial Design Clinic**

The evaluation of new products and services with emphasis on the Industrial Design content. The goal of the evaluation exercise is to provide the client with advice.

Note: Offered in odd-even dated academic years.

Environmental Design 687 H(3-0)**Ergonomics for Environmental Design**

Consideration of human physical, physiological, perceptual, and behavioural characteristics in the design of an object or environment for safe and effective use. Methods of obtaining human factors information, applying this information in a design process, and evaluating designs against human factors constraints and user performance criteria. Sources of information and factors affecting the validity of information. The scope of human factors, ergonomics, anthropometry, and related disciplines. Independent research in applications of individual interest.

Note: Offered in odd-even dated academic years.

Environmental Design 689 H(3-0)**Industrial Design Technology**

Application of contemporary and developing technologies to industrial design. Content covers manufacturing processes and materials, with particular emphasis on metals and plastics. The course includes lectures, design exercises, seminar discussions, case studies and field trips.

Note: Offered in even-odd dated academic years.

Environmental Design 691 H(3-0)**History of Industrial Design**

Review of the social, cultural and technical environment of Industrial Design; major personalities, design movements and achievements in the design of products since 1900; current and emerging trends.

Note: Offered in odd-even dated academic years.

Environmental Design 693 H(3-0)**People and Products**

Seminar course exploring the interactions between people and products on their many levels and in their multifaceted complexity. Product perception, attitudes, meaning, semiotics, and psycho-social processes. Awareness of frameworks and concepts for understanding the interaction between people and products from industrial design, psychology, sociology, anthropology, ethology, and other disciplines. Application of such frameworks, concepts, and methods to the design process.

Note: Offered in even-odd dated academic years.

Environmental Design 697 Q(1.5-1.5T)**Advanced Special Topics in Environmental Design**

Topics in architecture, environmental science, industrial design and planning.

MAY BE REPEATED FOR CREDIT

Environmental Design 702 F(0-16)**Advanced Environmental Design Practice**

Interdisciplinary training in environmental design practice at an advanced level, centred on case studies, information probing and analysis; culminates in a policy planning, design or management assignment and an environmental design

presentation on a real world problem.

Prerequisite: Environmental Design 609 or 711 or permission of instructor.

Note: Credit for both Environmental Design 701 and 702 will not be allowed.

Note: Offered in a single session.

Note: Graded on CR/C/F basis only.

Environmental Design 703 Q(0-3)**Directed Study in Environmental Design**

Research, readings or a studio project in architecture, environmental science, industrial design or planning.

Note: Open only to Environmental Design students with consent of the Associate Dean (Academic).

MAY BE REPEATED FOR CREDIT

Environmental Design 707 H(0-8)**Ecological Management in Land Use Planning**

A studio course in which a real land use problem with a major ecological management component is taken on by the class as a consulting team. Problem definition, proposal preparation and the complete study from regional biophysical and land use inventory through client presentations of interim and final results are completed within the term. The final report must include development recommendations and environmental management guidelines. Projects are drawn mainly from the resource development industry, although other potential clients are considered.

Environmental Design 709 H(3-0)**Product and Technology Assessment**

Theoretical, legal, and practical aspects of assessing products and technologies for their environmental impacts (socio-economic, health, safety, and biophysical). Philosophy and theory of PATA, life cycle assessment, life cycle costing, risk assessment and management, green product endorsement and labelling, and purchasing guidelines are explored through lectures, seminar, and projects.

Environmental Design 711 H(0-8)**Theoretical Basis for Interdisciplinary Intervention and Design**

Comparisons and contrasts among disciplinary, multidisciplinary and interdisciplinary intervention and research. Focus on interdisciplinary teamwork knowledge and skills, on the ability to integrate research into professional real world contexts and on the ability to communicate research results effectively. This course is open only to students registered in a PhD program and is a prerequisite to Environmental Design 702.

Environmental Design 713 H(3-1)**Research and Analytic Methods for Planning**

Advanced planning techniques and methods for managing, analyzing, and evaluating (Theoretical, legal, a 368.-1.1314 T Insclmwork)Tj T*tered in a.

Research and Analytic Methods f23sment

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Environmental Design 762 F(0-16)**Advanced Studio in Environmental Design**

Topics vary from year to year, depending on such factors as current issues and contemporary problems. A number of studio topics may be offered to accommodate a variety of interests.

Note: Full course offered in single session only.

MAY BE REPEATED FOR CREDIT

Environmental Design 783 H(0-3)**Directed Study in Environmental Design**

Research, readings or a studio project in architecture, environmental science, industrial design or planning.

Note: Open only to Environmental Design degree students with consent of the Associate Dean (Academic).

MAY BE REPEATED FOR CREDIT

Environmental Design 791 H(0-8)**Studio in Industrial Design**

Professional experience in design principles and/or analytical methods, inter-disciplinary approaches and specific skills. Topics vary from year to year, depending on such factors as current issues and contemporary problems. A variety of studios may be offered to accommodate the varied level of student development.

MAY BE REPEATED FOR CREDIT

Environmental Design 792 F(0-16)**Studio in Industrial Design**

Professional experience in design principles and/or analytical methods, interdisciplinary approaches and specific skills. Topics vary from year to year, depending on such factors as current issues and contemporary problems. A variety of studios may be offered to accommodate the varied level of student development.

Prerequisite or Corequisite: Environmental Design 533.

Note: Full course offered in single session only.

MAY BE REPEATED FOR CREDIT

Environmental Design 793 H(0-8)**Workshop in Industrial Design**

Instruction and supervised experience in the use of tools and equipment for the development of study models, prototypes and graphic material related to student projects. Field work and term projects.

793.01. Workshop Skills for Architecture**793.02. Workshop Skills for Industrial Design****793.03. Workshop Skills for Environmental Design.**

NOT INCLUDED IN GPA

Environmental Design 799 H(3-0)**Preceptorship**

A Preceptorship is a study and training arrangement made between a student and an employer or an equivalent supervisor which has specific educational objectives, a method of evaluation, and is an integral part of a student's Program of Studies.

Preceptorships offer a number of benefits: acquiring skills and knowledge which may be better obtained outside the University; developing first-hand experience of professional design practice; preparing for more focused studies in the Faculty; and conducting research. An approved preceptorship assignment is equivalent to full-time

studies. Preceptorships are not normally approved until a Program of Study is at least conditionally approved.

MAY BE REPEATED FOR CREDIT

Master's Degree Project. Students in Environmental Design, undertaking their Master's Degree Project, will register in PROJ 777/778.

Instruction offered by members of the Faculty of Environmental Design.

Senior Courses**Environmental Design Architecture 511 H(3-1)****Building Science and Technology I**

Functioning of the building enclosure: demonstration of the behaviour of building elements and their sub-assemblies under differential temperature and pressure stresses; fundamentals of acoustics; nature and use of building materials; response of building materials to climatic cycles radiation, precipitation, heating and cooling.

Note: Credit for both Environmental Design Architecture 511 and Architectural Studies 449 will not be allowed.

Environmental Design Architecture 519 H(3-0)**Structures for Architects I**

An overview of the different structural systems which may be considered for buildings including: an intuitive application of the principles of mechanics; the relationship of form and structural resistance; typical applications in steel, reinforced concrete and composite systems; and long spans, tall buildings and space structure principles.

Environmental Design Architecture 521 H(3-0)**Introduction to Design Theories**

The contemporary cultural, social, and philosophical arenas in which architecture exists are examined through lectures, readings and seminars. The course runs in conjunction with Environmental Design Architecture 581.

Note: Credit for both Environmental Design Architecture 521 and Architectural Studies 455 will not be allowed.

Environmental Design Architecture 523 H(3-0)**History of Architecture and Human Settlements**

A survey history of architecture and human settlement from the prehistoric times until the present. The first course addresses the premodern traditions of the major world cultures. The second course explores the traditions of the Western world from the beginning of the Italian Renaissance until the present. The courses will examine the changes in world view that have altered the course of architecture through the study of selected works of architecture and urbanism.

523.01. History of Architecture and Human Settlements I - Premodern Traditions of the World**523.02. History of Architecture and Human Settlements II - The Western Tradition 1400 to Present**

Note: Credit for both Environmental Design Architecture 523 and any of Architectural Studies 457, Environmental Design 671 or Environmental Design Architecture 623 will not be allowed.

Environmental Design Architecture 525 H(3-0) (formerly Environmental Design 683.15)**Architecture of the Western World Since 1900**

A survey of the most significant examples of modern architecture, defining their stylistic character in light of developments in technology, the history of ideas, and social and historical factors.

Note: Credit for both Environmental Design Architecture 525 and Art History 425 will not be allowed.

Environmental Design Architecture 541 H(100 hours)**Graphics Workshop I**

A skill building course with instruction and supervised experience in basic drafting, sketching and rendering; principles of perspective, drawing and presentation conventions. A variety of instruction may be offered to accommodate the *orkshop Tf 0 -1.9714 TDill bui and*

Graduate Courses**Environmental Design Architecture 611 H(3-1)*****Building Science and Technology II***

Theory and principles of structural, foundation and building service systems. Application of building science principles to building structure and enclosure, examination of the types and manufacture of building elements and the application of building components to specific problems in architecture.

Environmental Design Architecture 615 Q(3-0)***Environmental Control Systems***

Approaches to the design of heating, cooling, and ventilation systems for buildings. Issues in system design such as energy efficiency and indoor air quality.

Environmental Design Architecture 617 Q(3-0)***Architectural Lighting Design***

Fundamentals of light and visual perception. Approaches to the design of non-uniform and uniform lighting systems for buildings. Issues in system design such as human satisfaction and performance and energy efficiency. Development of skills in the selection and design of lighting systems.

Environmental Design Architecture 619 H(3-0)***Structures for Architects II***

Fundamentals of Structural Analysis including: the characteristics and performance of the various components of structures; the terminology and notation necessary for effective teamwork with structural engineering consultants; and basic design calculations for simple structures.

Environmental Design Architecture 621 H(3-0)***Formal Strategies in Architecture***

The relationship between architectural intention and a syntactic knowledge of architecture. Precedents used as vehicles of investigation to clarify the ways meaning is 'contained' in form. The formal strategies utilized by the architect in the generation of architectural meaning through built form.

Environmental Design Architecture 655 H(3-0)***Computer-Aided Architectural Design***

Three- and two-dimensional representation of designs. Issues in computer-aided architectural design such as consequences for conceptualization, experiential qualities of design with machines, new approaches to generation of designs, re-use of information, possibilities of new information technologies, and personal productivity.

Environmental Design Architecture 661 H(3-0)***Management and Cost Control in the Building Industry***

Organization for building design and construction according to various types of projects; networks and other systems for project control; building economics; cost analysis and estimating techniques; and cost controls during design and construction.

Environmental Design Architecture 663 H(3-0)***Architectural Professional Practice II***

The nature of the building industry, stakeholders and many of the participants and their responsibilities. Brings together the theoretical framework of the architect's role in society with the practicality of managing a practice. Project management and

office administration, trends, liabilities and systems for project control such as building economics; cost analysis and estimating techniques; and cost controls during design and construction.

Environmental Design Architecture 682 F(0-16)***Intermediate Architectural Design Studio***

An intermediate design studio in which students work on projects defined by the instructor. Topics may vary from year to year. They are determined by the creative interests of the faculty assigned to the course. Enrollment may be limited.

Note: Full course offered in single session only.

Note: Normally open only to students in Faculty of Environmental Design programs.

MAY BE REPEATED FOR CREDIT

Environmental Design Architecture 719 H(1.5-4)***Structures for Architects III***

Advanced structural systems for buildings including: theory and basic analysis of foundations; structural connections and composite structures; system characteristics and architectural intent; and case studies in contemporary building structures.

Environmental Design Architecture 752 F(0-16)***Advanced Architecture Design Studio***

An advanced design studio that explores advanced issues in architectural design. Local, national, and international distinguished practitioners normally participate in these studios. Topics vary from year to year.

Note: Full course offered in single session only.

Note: Normally open only to students in Faculty of Environmental Design degree programs.

MAY BE REPEATED FOR CREDIT

Environmental Design Architecture 782 F(0-16)***Senior Studio in Architecture***

A research oriented design studio in which students collaborate with faculty in projects exploring contemporary themes in architecture. Topics vary from year to year and are defined by the current research interests of Faculty. Enrollment may be limited.

Note: Full course offered in single session only.

MAY BE REPEATED FOR CREDIT

Instruction offered by members of the Faculty of Environmental Design.

Graduate Courses**Environmental Design Planning 619 H(3-1)*****Ecological-Environmental Planning***

The concepts of ecology and "designing with nature" in application to human settlement planning. Discussion of key concepts such as biomes, energy and nutrient flows, habitat, trophic gradients, etc. as these can be accounted for, altered, preserved, restored or manipulated in the various episodes of planning and designing for built environments. Conceptualizing the design of environments that enhance or create new urban ecological regimes conducive to sustainability. Examples ranging from general land use plans to housing and design projects.

Note: Not open to students with credit in Environmental Design Planning 634.

Environmental Design Planning 634 F(3-0)***Professional Planning Practice 1: Skills and Knowledge***

The first in an integrated set of core courses for planning students that addresses priority knowledge and skill sets. A comprehensive lecture, workshop and studio course covering history, theory and practice of planning. An introduction to physical planning, and to decision-making frameworks and techniques is incorporated.

Note: The assignments assume a working knowledge of computer applications, including spreadsheets and databases.

Environmental Design Planning 636 F(3-0)***Professional Planning Practice 2: Skills and Knowledge***

The second in an integrated set of core courses for planning students that addresses priority knowledge and skill sets. A comprehensive lecture, workshop and studio course covering history, theory and practice of planning. Impact assessment methods, ecological and economic frameworks and

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Fine Arts 507 H(0-3)**Topics in Interdisciplinary Multi-Media Research**

Instruction in the creation of interdisciplinary artworks (including performance, installation and computer projection).

Prerequisite: Fine Arts 201 or consent of the Faculty.

MAY BE REPEATED FOR CREDIT

Graduate Courses**Fine Arts 601** H(0-3)**Studies at the Banff Centre**

Interdisciplinary fine arts studies. Although the Banff Centre does not provide credit course instruction, students with advanced experience in art, dance, drama or music at the Banff Centre may apply for graduate-level credit from the University of Calgary.

Prerequisite: Consent of the Faculty.

MAY BE REPEATED FOR CREDIT

NOT INCLUDED IN GPA

Fine Arts 603 H(3-0)**Topics in Fine Arts: Interdisciplinary Seminar**

Interdisciplinary seminar in the advanced study and interpretation of the interrelationships between music, the fine arts, and the history of ideas, using a theme-oriented approach.

Note: This is a required course in the PhD program for Music Education, Composition and Musicology.

MAY BE REPEATED FOR CREDIT

Fine Arts 607 H(3-0)**Topics in Multi-Media Research**

Concentrated instruction in computer applications in the Fine Arts

Prerequisite: Consent of the Faculty.

MAY BE REPEATED FOR CREDIT

Programme offert par le Département d'études françaises, italiennes et espagnoles de la Faculté des Humanités.

Directeur du Département - R. Schmidt

Il est recommandé aux étudiants de consulter le Département à chaque étape de la planification de leur programme.

Les étudiants admis au baccalauréat en français se verront désigner un professeur du Département qui sera leur conseiller attiré et les aidera à planifier leur programme ainsi qu'à choisir leurs cours.

Les étudiants de langue maternelle française, italienne et espagnole et ceux dont le niveau d'études dans ces langues est supérieur à celui du diplôme de fin d'études secondaires (y compris les étudiants provenant d'un programme bilingue ou d'immersion) doivent obligatoirement consulter le Département pour se faire placer dans le cours approprié. Les locuteurs natifs ne peuvent se faire créditer des cours de langue ni par équivalence ("advanced credit") ni par évaluation spéciale ("special assessment").

Pour s'inscrire aux cours de niveau intermédiaire ou avancé (niveau 300 et suivants, sauf French 335 ou 337), l'étudiant doit avoir réussi au cours French 215 et 217, ou 220, ou 221 ou avoir obtenu l'autorisation du Département.

Certains cours intermédiaires et avancés ne sont

pas offerts tous les ans. Pour les cours proposés pour l'année en cours, prière de se reporter à l'horaire général de l'Université.

Remarque: Pour s'inscrire à un cours de langue en français, l'étudiant doit avoir obtenu au moins la note de "C-" dans les cours préalables (French 211, 213, 215, 217, 315, 317, 415).

Instruction offered by members of the Department of French, Italian and Spanish in the Faculty of Humanities.

Department Head - R. Schmidt

Students are encouraged at all times to seek departmental guidance in planning any aspect of their programs. Upon admission to the Major in French each student will be assigned a departmental advisor who will assist with program planning and course selection.

French, Italian and Spanish-speaking students or students with more than matriculation in these languages (including graduates of a bilingual or immersion program) MUST consult the Department to be placed in a course corresponding to their ability. Native speakers are not eligible to take language courses by special assessment or to receive advanced credit for them.

To register in Senior Courses (300 level and above, except French 335 or 337), students must have completed French 215 and 217, or 220, or 221 or have obtained the consent of the Department.

Not all Senior Courses are offered every year. Current course offerings are listed in the Master Timetable.

Note: All university level prerequisites for French language courses (specifically French 211, 213, 215, 217, 315, 317, 415) must be met with a grade of "C-" or better.

Junior Courses**French 209** H(4-1)**Beginners' French I**

Basic elements of the French language, including training in comprehension, speaking, reading and writing of French.

Note: Not open to students with credit in French 20, 30, or 31 (or equivalent).

Note: May not be counted towards a Minor, a Major or Honours in French.

French 211 H(4-1)**Beginners' French II**

A continuation of French 209.

Prerequisite: French 20, French 209 or consent of the Department.

Note: Not open to students with credit in French 30 or 31 (or equivalent).

Note: May not be counted towards a Minor, a Major or Honours in French.

French 213 H(4-1)**Intermediate French**

Further development of abilities in spoken and written French. Review of French grammar along with extensive oral and written practice.

Prerequisite: French 211, French 30, French N30 or consent of the Department.

Note: Not open to students with credit in French 215 or 217.

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French 317 H(3-1)**Vocabulaire et analyse grammaticale 2**

Suite du cours French 315.

Préalable: French 315, 319 ou autorisation du Département.

Remarque: Non accessible aux étudiants avec accréditation en French 320 ou 321.

French 323 H(3-0)**Introduction au Canada francophone**

Étude de productions culturelles en langue française qui sont représentatives de plusieurs régions du Canada.

Préalables: French 215 et 217, ou 220, ou 221, ou autorisation du Département.

Remarque: Non accessible aux étudiants avec accréditation en French 369.

French 333 H(3-0)**La francophonie vue à travers les médias**

Étude de sujets d'actualité de la francophonie, tels que présentés dans des médias divers (journaux, magazines, radio, télévision, etc.)

Préalables: French 215 et 217, ou 220, ou 221, ou autorisation du Département.

French 335 H(0-3T)**Reading French (Advanced I)**

Development of advanced reading skills in French. Building on strategies, grammar and vocabulary acquired in French 237 or other French courses, more difficult texts will be studied and reading comprehension improved. Readings drawn mainly from journalistic sources, and specialized publications in the Humanities and Social Sciences. Computer-based independent study.

Prerequisite: French 30, 213, 237 or consent of the Department.

Note: May not be counted towards a Minor, a Major or Honours in French. Not open to students with credit in French 215 or higher (other than French 235 and 237).

NOT INCLUDED IN GPA

French 337 H(0-3T)**Reading French (Advanced II)**

A continuation of French 335. Computer-based independent study.

Prerequisite: French 335 or consent of the Department.

Note: May not be counted towards a Minor, a Major or Honours in French. Not open to students with credit in French 215 or higher (other than French 235 and 237).

NOT INCLUDED IN GPA

French 339 H(3-0)**Concepts littéraires**

Concepts fondamentaux de l'analyse littéraire. L'accent sera placé principalement sur les traditions littéraires des pays francophones. Initiation à l'utilisation de sources bibliographiques particulières à l'étude de la littérature de langue française.

Préalables: French 215 et 217, ou 220, ou 221, ou autorisation du Département.

Remarque: Non accessible aux étudiants avec accréditation dans plus d'un des cours suivants: French 351, 353, 355, 363 et 365.

French 343 H(3-2)**Cinéma de langue française**

Introduction à l'analyse de films en français.

Préalables: French 215 et 217, ou 220, ou 221, ou autorisation du Département.

French 349 H(2-2)**Phonologie française**

Introduction à la structure des sons de la langue française. Concepts fondamentaux de la phonologie: inventaire des sons, liaisons, e muet, etc. Analyse contrastive et comparaison avec l'anglais. Applications en classe et au laboratoire.

Préalables: French 215 et 217, ou 220, ou 221, ou autorisation du Département.

Remarque: Non accessible aux étudiants avec accréditation en French 345.

French 359 H(3-0)**Histoire des idées**

Concepts fondamentaux de l'histoire des idées et panorama de la pensée française sous les diverses formes qu'elle revêt dans les domaines littéraire, artistique, philosophique, politique et religieux.

Préalables: French 215 et 217, ou 220, ou 221, ou autorisation du Département.

Remarque: Non accessible aux étudiants avec accréditation en French 367.

French 399 H(3-0)**Langue française, littérature et culture**

Le format et le contenu peuvent varier d'une année à l'autre.

Préalables: French 215 et 217, ou 220, ou 221, ou autorisation du Département.

MAY BE REPEATED FOR CREDIT

French 415 H(3-1)**Étude approfondie de la langue française**

Études appliquées de phonologie, de syntaxe, de sémantique et de lexicologie. Perfectionnement de techniques choisies d'écriture. Le format et le contenu peuvent varier d'une année à l'autre.

Préalable: French 317, 320, 321 ou autorisation du Département.

Remarque: Non accessible aux étudiants avec accréditation en French 419 ou 421.

MAY BE REPEATED FOR CREDIT

French 439 H(3-0)**Le Canada francophone**

Études avancées des cultures francophones du Canada: langue, littérature et cinéma. Le format et le contenu peuvent varier d'une année à l'autre.

Préalable: Quatre demi-cours de français, parmi les suivants: French 315, 317 (ou 319, 320, 321), 339 (ou 351, 353, 355, 363, 365), 349 (ou 345), 359 ou autorisation du Département.

MAY BE REPEATED FOR CREDIT

French 449 H(3-0)**Littératures francophones contemporaines**

Études culturelles et littéraires à partir de textes modernes écrits en français et originaires des grandes régions de la francophonie (par exemple, le Maghreb, les Antilles ou l'Indochine). Les sujets traités peuvent inclure la tradition et la modernité, la quête de l'identité, le post-colonialisme, la différence

et l'assimilation ainsi que le statut de la femme. Le format et le contenu peuvent varier d'une année à l'autre.

Préalable: Quatre demi-cours de français, parmi les suivants: French 315, 317, (ou 319, 320, 321), 339 (ou 351, 353, 355, 363, 365), 349 (ou 345), 359 ou autorisation du Département.

MAY BE REPEATED FOR CREDIT

French 459 H(3-0)**Littérature du 19e siècle**

Études spécialisées en littérature française du 19e siècle. Le format et le contenu peuvent varier d'une année à l'autre.

Préalable: Quatre demi-cours de français, parmi les suivants: French 315, 317 (ou 319, 320, 321), 339 (ou 351, 353, 355, 363, 365), 349 (ou 345), 359 ou autorisation du Département.

MAY BE REPEATED FOR CREDIT

French 479 H(3-0)**Langue et société**

Étude de la langue utilisée dans le monde francophone à l'aide des concepts fondamentaux de la sociolinguistique. Le format et le contenu peuvent varier d'une année à l'autre.

Préalable: Quatre demi-cours de français, parmi les suivants: 315, 317 (ou 319, 320, 321), 339 (ou 351, 353, 355, 363, 365), 349 (ou 345), 359 ou autorisation du Département.

MAY BE REPEATED FOR CREDIT

French 499 H(3-0)**Projet spécial en études françaises (langue, littérature ou culture)**

Les thèmes de ce cours seront abordés à l'aide de méthodes novatrices.

Préalables: Quatre demi-cours de français, parmi les suivants: French 315, 317 (ou 319, 320, 321), 339 (ou 351, 353, 355, 363, 365), 349 (ou 345), 359 ou autorisation du Département.

MAY BE REPEATED FOR CREDIT

French 503 Q(0-3T)**Projet de fin d'études du Premier cycle de français**

Recherche pluridisciplinaire de fin d'études, rédigée en français, visant à relier les connaissances et aptitudes acquises dans le cadre de la concentration en français à celles qui ont été acquises dans une spécialisation autre que le français (par exemple, une autre concentration, une mineure ou une minispécialisation). Les projets seront exposés

French 507 **Q(0-3T)****Études indépendantes. Stage de recherche en français**

Stage de recherche, effectué sous la direction de professeurs du Département. Rapport rédigé en français. Les étudiants obtiendront soit la note de CR (Completed Requirements) soit celle de F (Failed).

Préalable: Autorisation du Département, obtenue après remise par l'étudiant d'une proposition écrite.

French 509 **H(3-0)****Traduction**

Étude avancée de la théorie et de la pratique de la traduction. Les travaux de traduction se feront du français à l'anglais et de l'anglais au français, à partir de textes de nature diverse. Le format et le contenu peuvent varier d'une année à l'autre.

Préalables: Romance Studies 409 et trois demi-cours de français de niveau 400 ou autorisation du Département.

French 511 **H(3-0)****Théories critiques**

Présentation de certaines théories contemporaines qui ont cours en études littéraires et culturelles. Le format et le contenu peuvent varier d'une année à l'autre.

Préalables: Trois demi-cours de français de niveau 400, ou autorisation du Département.

MAY BE REPEATED FOR CREDIT

French 515 **H(3-1)****Étude spécialisée de la langue française**

Étude avancée de la structure et de l'usage de la langue française. Le format et le contenu peuvent varier d'une année à l'autre.

Préalable: Trois demi-cours de français de niveau 400 ou autorisation du Département.

Remarque: Non accessible aux étudiants avec accréditation en French 519 ou 521.

MAY BE REPEATED FOR CREDIT

French 539 **H(3-0)****Étude spécialisée du Canada français**

Séminaire sur des sujets avancés dans le domaine de la langue, de la littérature ou de la culture au sens large. Le format et le contenu peuvent varier d'une année à l'autre.

Préalable: Trois demi-cours de français de niveau 400 ou autorisation du Département.

MAY BE REPEATED FOR CREDIT

French 549 **H(3-0)****Étude spécialisée de la francophonie**

Séminaire sur des sujets avancés ayant trait à la langue, aux littératures ou aux diverses cultures de la francophonie. Le format et le contenu peuvent varier d'une année à l'autre.

Préalable: Trois demi-cours de français de niveau 400 ou autorisation du Département.

MAY BE REPEATED FOR CREDIT

French 557 **H(3-0)****Littérature et culture françaises du 17e siècle**

Étude de textes choisis du "Grand siècle". Le format et le contenu peuvent varier d'une année à l'autre.

Préalable: Trois demi-cours de français de niveau

400 ou autorisation du Département.

MAY BE REPEATED FOR CREDIT

French 559 **H(3-0)****Littérature et culture françaises du 18e siècle**

Étude de textes choisis du Siècle des Lumières en France. Le format et le contenu peuvent varier d'une année à l'autre.

Préalable: Trois demi-cours de français de niveau 400 ou autorisation du Département.

MAY BE REPEATED FOR CREDIT

French 595 **H(3-0)****Perfectionnement des techniques de recherche**

Perfectionnement des techniques de recherche. Préparation de bibliographies spécialisées; l'accent sera mis sur l'analyse des sources secondaires. Rédaction de résumés et de propositions de recherche, selon le format en usage dans l'édition savante contemporaine. Utilisation avancée de la technologie et établissement de bibliographies informatisées.

Préalables: Trois demi-cours de français de niveau 400, ou autorisation du Département.

Remarque: Ce cours est réservé aux étudiants inscrits au programme du baccalauréat spécialisé ("Honours") de français.

French 597 **H(0-3T)****Mémoire de baccalauréat spécialisé**

Préalables: French 595 plus trois demi-cours de français de niveau 400, ou autorisation du Département.

French 599 **H(3-0)****Études spécialisées de la langue, de la littérature ou de la culture**

Séminaire sur des questions d'actualité ayant trait à la langue, à la littérature ou à la culture au sens large. Exemples de sujets traités: la littérature française du Moyen-Âge, l'autobiographie, l'écriture des femmes de langue française, le créole dans les écrits de langue française, etc.

Préalables: Trois demi-cours de français de niveau 400, ou autorisation du Département.

MAY BE REPEATED FOR CREDIT

Graduate Courses

(Dans des cas considérés comme exceptionnels, le Département accordera des crédits au niveau supérieur pour des cours de niveau 500.

L'autorisation du Département sera alors indispensable. Les étudiants qui suivront un cours de niveau 500 dans le but d'obtenir des crédits comptant pour leurs études supérieures seront tenus d'effectuer des travaux supplémentaires.)

(The Department will give graduate credit for 500-level courses in cases it deems exceptional. This option is subject to the approval of the Department. Graduate students taking a 500-level course for graduate credit will be asked to complete additional requirements.)

French 605 **H(3-0)****Problématiques littéraires et culturelles**

MAY BE REPEATED FOR CREDIT

French 611 **H(3-0)****Langue française**

MAY BE REPEATED FOR CREDIT

French 615 **H(3-0)****Images, textes, performance**

MAY BE REPEATED FOR CREDIT

French 625 **H(3-0)****Études cinématographiques**

MAY BE REPEATED FOR CREDIT

French 635 **H(3-0)****Le texte narratif**

MAY BE REPEATED FOR CREDIT

French 641 **H(3-0)****Littérature et culture avant 1800**

MAY BE REPEATED FOR CREDIT

French 645 **H(3-0)****La Modernité**

MAY BE REPEATED FOR CREDIT

French 655 **H(3-0)****Francophonies**

MAY BE REPEATED FOR CREDIT

French 665 **H(3-0)****Études postcoloniales**

MAY BE REPEATED FOR CREDIT

French 675 **H(3-0)****Féminismes et Gender**

MAY BE REPEATED FOR CREDIT

French 685 **H(3-0)****Voix québécoises et canadiennes**

MAY BE REPEATED FOR CREDIT

French 691 **H(3-0)****Autour d'un auteur**

MAY BE REPEATED FOR CREDIT

French 695 **H(3-0)****Profession et recherche**

MAY BE REPEATED FOR CREDIT

French 699 **H(3-0)****Thèmes spéciaux**

MAY BE REPEATED FOR CREDIT