Fleming College

Final Report:

Fleming College & Trent University
University Transfer Expansion

Project: 2015-34: Student Redirect Initiatives
between
Fleming College and Trent University

Submitted by: Joe Muldoon, Project Lead on August 19, 2016

Authors: Joe Muldoon (Trent University, Project Lead) Hailey Wright (Trent University, Co-Lead Coordinator), David Adam Baker (Fleming College, Co-Lead Coordinator)

Table of Contents

Introduction

The purpose of this project is to develop streams within Fleming College's (Fleming) General Arts & Science – University Transfer program to facilitate bidirectional-remediation within business and the sciences. The project's approach was to examine the existing Fleming University Transfer articulation agreement to Trent University (Trent), and relevant quantitative evidence and program mapping to determine its feasibility. The goal of the pathway is to facilitate second-year entry into strategic Bachelor of Science majors and the Bachelor of Business Administration program, in addition to the existing Bachelor of Arts second-year entry and limited transferability into the Bachelor of Science degrees. This pathway will have three distinct entry points: traditional Fleming recruitment and admission processes, Trent's redirect upon application, and Trent's bidirectional-remediation. A bidirectional-remediated student will complete the certificate and transition into second-year studies of a degree program; this is identical to a student who entered into the University Transfer program through Fleming's traditional recruitment and admission process or Trent's re-direct upon application process.

This report will detail the processes taken to identify appropriate courses, course development, and program design successes and challenges, and provide best practices and lessons learned.

Project Timeline

The University Transfer pathway between Fleming and Trent has been a longstanding success for both institutions and the students it serves. The project was modelled after similar ONCAT funded initiatives. The initial discussion of this project began at a meeting between Fleming and Trent administration in early May 2015. During that meeting, an expansion was proposed to the existing University Transfer pathway where Trent would redirect suspended students to Fleming's General Arts & Science University Transfer instead of Trent enforcing the traditional one-year suspension from the university. Trent highlighted the need that any redirect or bidirectional-remediation pathway would need to allow seamless second-year entry into specific Bachelor of Science majors and the Bachelor of Business Administration program because of their persistently high first-year suspension rates.

Currently, the General Arts & Science – University Transfer program has a social science and humanities emphasis through its multidisciplinary approach to literature, philosophy, psychology, and sociology. This program attracts students wishing to survey the humanities discipline; lack the academic credentials to meet university admission requirements; or previously attempted university studies. Fleming currently has formal articulation agreements with Trent, Carleton University, and the University of Windsor; each agreement grants one-year of appropriate academic credit into select degree programs. In addition, Trent and Fleming entered into an informal redirect upon admission agreement in 2014 to give an option to unqualified Trent applicants a pathway to achieve a degree in four years.

Early in June 2015, a decision was made to develop stream options within the existing University Transfer program. The project team performed an analysis of Trent's first-year major requirements that identified key courses that required development for the business and science streams. Additionally, Fleming faculty identified the courses that are integral to the University Transfer program, which ensures student success and maintains its program vocational outcomes. The courses deemed integral are mandated program requirements of the three-stream options.

Excluding existing one-to-one equivalents, the initial proposal outlined course development in the areas of accounting, biology, environmental studies, indigenous studies, introductory management, and mathematics.

The project's compressed timelines (funding awarded in November 2015) forced both institutions into a highly interactive and collaborative relationship: release of Trent course outlines to Fleming, joint faculty meetings to discuss course pedagogy, and peer review of course outlines and lesson plans. The success of the project is attributed to the joint faculty and administration collaboration at all stages. Regretfully, the original implementation of the new University Transfer stream pathways for fall 2016 was unrealistic. Both institutions are committed to the project's implementation and success; the University Transfer streams provide a unique opportunity to those students that wish to survey humanities, science and business disciplines, lack the university admission requirements, or an alternative to Trent's academic suspension policy.

Discussion

Design

Trent and Fleming reached a consensus on which streams and corresponding courses would have the greatest mutual benefit. As part of the curriculum development process, Fleming faculty reviewed Trent's course outlines and consulted with Trent faculty when necessary regarding textbook selection and delivery patterns. Fleming consulted Trent faculty early in the development process to ensure the courses would meet Trent's equivalency threshold.

Courses developed include Preparatory Calculus, Calculus I (60 hrs.), Calculus II (60 hrs.), Biology I (60 hrs.), Biology II (60 hrs.), and Introduction to Management. Refer to appendix 2.0 for a course learning outcome comparison chart. Fleming is continuing to work on finalizing how the multiple streams will operate within the existing University Transfer program.

Fleming has included an equivalent preparatory calculus course in addition to the two calculus equivalents. This preparatory course ensures that students have the necessary background knowledge and understanding to succeed in an introductory university calculus course. Further, it allows students without a high school grade 12 U mathematics credit access to the University Transfer - Science stream.

Project Requirements and Learning Outcomes

Previous pathway developments between Trent and Fleming utilized a standard approach for equivalency analysis. Fleming would share course outlines and curriculum documentation and it would be reviewed by Trent faculty, be deemed equivalent, and worked into a pathway agreement. Understanding the overall project goal of on-time degree attainment and the timeline the project team was presented with the team assessed the way in which course review is typically orchestrated between the two institutions and decided on a unique approach.

The proposed streams have been mapped in a way that ensures students have the prerequisites to provide entrance in program specific second year courses (Appendix 1.0). The proposed streams create a seamless transfer into the following Trent degree programs: Business Administration (BBA), Economics (BA or BSc), Biology (BSc), Math (BA or BSc), Psychology (BA or BSc), English Literature (BA), Philosophy (BA) and Sociology (BA). Students are able to apply for, and declare majors outside of these listed

programs, but not all transfer credits may be usable towards degree requirements nor would students have the prerequisites to enter directly into the second-year of the desired program.

The transfer equivalency database was reviewed following the development of the curriculum map to determine which Fleming courses may already have been deemed equivalent and could be worked into the pathway without requiring additional course development. The benefit of this approach was it allowed the team to adhere to project deadlines. Further, it allows course delivery at Fleming to be viable as a single course spans multiple college programs.

This preliminary work allowed Trent to make recommendations to Fleming regarding course development. Devising a curriculum map in the preliminary stages allowed for a more focused course development.

Course Development and Curriculum Analysis Process

Curriculum analysis is highlighted as a best practice. Following the preferred curriculum map, department heads and designated faculty members at Fleming and Trent were asked which courses would best fit in the new streams. The initial step in the curriculum analysis was to share current Trent course outlines with Fleming. This provided Fleming faculty the framework to ensure the courses had enough learning outcome overlap to constitute an equivalency following development. Subsequent to the distribution of the course outlines, subject matter experts met to explore course pedagogy and delivery pattern nuances.

Following the meetings, faculty began ongoing email consultation and collaboration. Once Fleming had established a skeletal course outline, learning outcomes, lecture and seminar topics, it was shared with Trent. Trent subject matter experts reviewed the skeletal outline and, if appropriate, awarded an 'in-principle' equivalency (Appendix 3.0). After full development, Trent subject matter experts reviewed the complete outline and related documentation to determine its equivalency. Equivalencies for developed courses were awarded with the exception of Biology I and Biology II. The project team anticipates that both Biology I and Biology II will receive equivalencies by early September 2016.

Challenges

Despite the many successes, the project team faced challenges internally.

The project received its approval midway through the fall academic term; this midterm approval prevented Fleming from beginning the development process until the end of the term. Full-time faculty received development release time as part of their winter and spring teaching assignments.

As discussed in the 'Project Requirements and Learning Outcomes' section an initial scan for existing equivalencies was conducted. Trent and Fleming currently have multiple pathways between the Business Administration programs at the two institutions and as such, felt that an equivalency would already exist for Contemporary Issues in Management. It was discovered that although these business pathways do in fact award Trent's ADMN 1000H credit within the transfer credit block, this credit is awarded on full program learning outcomes as opposed to a one-to-one course equivalent. An attempt was made to have an existing Fleming course reviewed for equivalency to ADMN 1000H but a recommendation was made by Trent faculty to develop a new course as substantial differences were seen between the two outlines. This resulted in new course development and the submitted course outline has been awarded an equivalency to Trent's ADMN 1000H course.

At present, Trent has an internal program, which supports newly suspended students to re-enter the University without completing the standard one-year suspension. This program known as 'Fresh Start' allows students to petition to stay at Trent on a reduced course load under close supervision of academic advisors. The project team has faced some challenges in moving forward with bidirectional remediation process as it conflicts with an existing institutional program aimed at supporting student success within Trent.

The Trent project team has recommended that both the Fresh Start program and the bi-directional-remediation program can coexist and ultimately the student will decide which suspension outcome is best suited to their needs. Trent students facing suspension will meet with Trent academic advisors and be presented with the option to make an appeal to become a part of the Fresh Start program or to participate in the pathway with Fleming. This option supports the desire for these students deciding the direction of their educational journey and ensures that staff supports are in place to assist with the decision making process.

The project team identified a research opportunity in this area regarding success rates and re-admission into full-time learning at Trent. Following implementation of the additional University Transfer streams and a cohort of bidirectional-remediation students from Trent, the institutions commit to tracking and interpreting data relating to the transfer of students and the success rates of each of the programs presented to at-risk students.

Successes

Among the many successes experienced, the most beneficial has allowed Trent and Fleming administration to hold a greater understanding of each other's practices including Trent's equivalency evaluation process and Fleming's program design and structure. This understanding will help support ongoing projects and collaborations.

The collaborative measures taken throughout the stages of curriculum mapping, course development and curriculum analysis for equivalency have led to a successful outcome of robust Bachelor of Science and Bachelor of Business Administration pathways. Students enrolled in any stream, regardless of how they entered, will have the opportunity to receive full Trent credit for their learning at Fleming. Another benefit is participating students will not have to enroll into a summer bridge in order to enter second-year programming at Trent. The project team views this as a monumental success of the curriculum planning and a best practice in student mobility as it allows students to receive full credit for the learning completed in the academic year and eliminates the need for off-term study.

The project is evidence that college curriculum developed and structured in a specific manner can allow for one-to-one college to university equivalents in the sciences and business disciplines. Further, the program and its streams are not the pure delivery of university curriculum at the college, but provide the necessary preparatory curriculum and applied learning where necessary to ensure student success.

The success of the project is attributed to the joint institutional faculty and administration collaboration at all project stages. The faculty pedagogy discussions have been a learning experience for each institution's faculty and administration.

Although the project has reached its end, there are still required areas to address in order to work towards successful implementation of the developed streams. Both Trent and Fleming recognize the

validity and benefit of the streams and are committed to launching and enrolling students through traditional direct-entry recruitment, redirect upon application and the bidirectional-remediation of first year suspension students at Trent. In order to establish program viability Fleming must ensure the streams have the required enrollment.

Further, the administrative teams will continue to collaborate regarding policies and procedures relating to student admission and enrolment, data sharing and agree to ensure the work completed through the project is implemented. Fleming is committed to offering the expanded University Transfer program. Moreover, Trent is committed to re-directing at the point of admission or advising suspended students of the bidirectional-remediation opportunity. These commitments to collaboration and full project execution span beyond the formal duration of this project. This project highlights Trent's and Fleming's commitment towards student mobility.

Appendix 1.0 - Degree Requirement Charts

Appendix 1.0 is developed from the Trent University Academic Calendar and shows an overview of degree credit requirements and how the articulated credits map into each of the degrees; BA, BSc and BBA.

Program Requirements for BA (Honours)	**Anticipated Courses Granted through transfer equivalencies from Fleming**
Must meet requirements for specific program as dictated in Academic Calendar	
20.0 overall credits	5.0 credits
A minimum of 7 credits at the 3000 or 4000 level	
A maximum of 7 credits at the 1000 level	5.0 at the 1000 level
A minimum of 3 credits with a grade of 60% of higher leading to majors in different disciplines	Potential credits to be awarded in: English Philosophy Psychology Sociology ARTS

Program Requirements for BSc (Honours)	**Anticipated Courses Granted through transfer equivalencies from Fleming**
Must meet requirements for specific program as dictated in Academic Calendar	
20.0 overall credits	5.0 credits
14.0 science credits (including 1.0 in MATH but not from MATH 1001H, 1080H, 2080Y, 2084H or 2085H)	4.0 Science credits to be awarded (MATH, BIOL, ECON, PSYC)
A minimum of 7 credits at the 3000 or 4000 level	
A maximum of 7 credits at the 1000 level	5.0 credits at the 1000 level
A minimum of 3 credits with a grade of 60% of higher leading to majors in different disciplines	Potential credits to be awarded in: Mathematics Biology Psychology Economics English

Program Requirements for Bachelor of Business Administration	**Anticipated Courses Granted through transfer equivalencies from Fleming**
Must meet requirements for specific program as dictated in Academic Calendar	
20.0 overall credits, 11.5 program credits	5.0 credits
6.5 ADMN credits consisting of ADMN 1000H, 1021H, 2010H, 2021H, 2100H, 2220H, 2510H, 3021H, 3200H, 3300H, 3400H, 4030H and 4101H	ADMN 1000H, ADMN 1021H
3.0 ADMN credits in addition to the above at the 3000 level or beyond	
2.0 ECON credits consisting of ECON 1010H, 1020H, 220H, and 2250H	ECON 1010H, ECON 1020H
A minimum of 7 credits at the 3000 or 4000 level	
A maximum of 7 credits at the 1000 level	5.0 credits at 1000 level
A minimum of 3 credits with a grade of 60% of higher leading to majors in different disciplines	Potential credits to be awarded in: Business Administration Economics Mathematics English ARTS

Appendix 2.0 - Learning Outcome Comparison

Introduction to Financial Accounting

Fleming College (ACCT 72) Course Learning Outcomes	**Trent University (ADMN 1021H) Course Learning Outcomes**
Explain what accounting is and identify the users and uses of accounting information Identify and distinguish between various generally accepted accounting principles State and utilize the basic accounting equation, analyse the interrelationships of the balance sheet, statements of income, retained earnings and cash flow Demonstrate the ability to analyse, journalize and post accounting transactions including month-end and year-end adjustments Demonstrate the ability to prepare an adjusted trial balance and financial statements Identify and prepare the various sections of a classified balance sheet and a multiple-step income statement Prepare and describe the accounting entries required for merchandising activities. Explain the perpetual and periodic methods for recording inventory Explain internal control and accounting procedures as they relate to cash, temporary investments and receivables	Ability to record the financial transactions of a business entity and to create a set of financial statements at the end of an operating cycle An understanding of the objectives and functions of the accrual accounting system and the role of GAAP and IFRS in the completion of annual financial statements The development of professional accounting literacy skills

Introduction to Management

Fleming College (TBA) Course Learning Outcomes	**Trent University (ADMN 1000H) Course Learning Outcomes**
Analyse key internal and external forces that shape any industry and organization Describe the underlying philosophies of management and types of role managers have within organizations Analyze the unique organizational structures of organization to identify the impacts on culture, work environment and HR practices Judge the ethics of a business decision making process using various models and theories Debate the business case for implementing sustainable practices in business Create a professional code of ethics including behaviour, representation, interpersonal skills, communication styles, trade and negotiation, self-management, corruption	Introduce the foundations of management and business fields of study and practice Introduce multiple important current issues and ideas facing managers and the wider community related to management, organization and business Appreciate these issues as interesting, important, practical, contested, challenging, multi-perspectival, multi-faceted Introduce central managerial functions and modern variants of them Develop stronger critical, analytical, contextual, communicational and interpersonal skills, particularly relating to business and management Develop a strong foundation for engaging in the varieties of organizational and managerial issues studied both within Trent's Business Administration Program as well as within other programs at Trent University

Microeconomics

Fleming College (BUSN 18) Course Learning Outcomes	Trent University (ECON 1010H) Course Learning Outcomes
Recognize and assess the fundamental economic principles and problems Apply the principles of supply and demand to the product and factor markets Analyze the different types of elasticity and how this concept influences business decisions Interpret and critique the influence that government has on the individual and on the firm Discuss and analyze the choices made by the consumer Outline and calculate how firms make decisions in competitive markets Describe and explain the various market structures and how they affect consumer and producer decisions Summarize why markets fail and critique what has been done to correct these issues Analyze the issues of income distribution (and poverty) and recommend potential solutions	Understand the notions of scarcity, choice and tradeoffs for consumers, producers, and the economy Understand the laws of supply and demand and how they impact on outcomes Appreciate why outcomes get altered when factor influencing supply and demand change Identify factors that may impede markets from achieving state of rest Understand consumer behaviour in light of constraints Identify various factors that allow production to take place Understand various types of costs in both short-run and long-run Characterize different types of market structure and appreciate which is preferable for a healthy economy interested in maximizing social welfare Understand why there may be market failure. Appreciate how regulation and government intervention may be required to bring desired outcomes in an economy Identify the pros and cons of free trade across both individuals and nations; understand international trade restrictions

Macroeconomics

Fleming College (BUSN 13) Course Learning Outcomes	**Trent University (ECON 1020H) Course Learning Outcomes**
Define, explain, interpret, and compare key economic indicators of the economy of Canada and of other countries Demonstrate an understanding of relationships between macroeconomic principles and selected current or historical issues of social justice and social welfare Identify historically important times in Canadian economic history and their impact on today's economy Demonstrate an understanding of relationships between specific macroeconomic models and selected political philosophies Describe and explain the fundamental macroeconomic problems and trade-offs faced by policy makers Discuss the role of government policy in stabilizing the Canadian economy Describe the role of the Ministry of Finance and the Bank of Canada in controlling fluctuations in the business cycle	Ability to solve every day macroeconomic problems Become familiar with the methodology and terminology commonly used Understand fundamental concepts in the field Introduced to key measures such as total output, total employment (or unemployment), aggregate expenditure, the general price level, etc. Understand how they all react and interact with one another, as the economy functions and operates Explain how a modern economy works; analyze key issues such as budget deficits, inflation, what causes interest rates to rise

Preparatory Calculus

Fleming College (TBA) Course Learning Outcomes	**Trent University Course Learning Outcomes**
Understand notations and the algebraic properties of real and rational numbers	Understand notations and the algebraic properties of real numbers
Explore the properties of functions in their different forms	Establish the concepts of functions with different forms
Sketch graphs of functions and evaluate their values at different points	Sketch graphs of functions and evaluate their values
Solve problems involving polynomial, rational, exponential, logarithmic and trigonometric functions	Solve problems involving polynomial and rational functions Solve problems involving Logarithmic functions
Solve simple sequences and series	Solve simple sequences and series
Manipulate elementary linear inequalities and equations	Manipulate elementary linear inequalities and equations
Formulate and evaluate mathematical models as applications of functions	Formulate mathematical models as applications of functions

Calculus I

Fleming College (TBA) Course Learning Outcomes	Trent University (MATH 1110H) Course Learning Outcomes
Compute limits of functions, using both direct and indirect methods Determine whether functions are continuous and where, and identify and classify points of discontinuity Differentiate and antidifferentiate a wide class of single-variable functions, such as polynomials, algebraic functions, trigonometry functions , exponential and logarithmic functions, and sums, products, quotients, compositions and inverses of these functions Integrate single-variable functions (such as those mentioned above) using methods up to and including substitution Use the first and second derivatives and asympototics of a function to obtain qualitative information about that function, such as intervals of increase or decrease, concavity, maxima and minima, existence and uniqueness of roots Use the properties of function to sketch the graph of the function (and its derivative) Use derivatives to solve applied problems including rate of change, linear approximation and optimization Understand the meaning of core calculus concepts in simple applications to physics, engineering, economics, biology, chemistry and other sciences Use integration to compute areas under curves, volumes and surface areas of rotationally symmetric solids Recall various abstract concepts such as continuity, derivatives, integrals, and antiderivatives to understand the main ideas in the proofs of some of the major classical results of calculus Recognize various abstract concepts of calculus to understand and use the statements of others	Compute limits of functions, using both direct and indirect methods Determine where and whether the functions are continuous, and identify and classify points of discontinuity Differentiate and antidifferentiate a wide class of single-variable functions, including polynomials, algebraic functions, trigonometric functions, exponential and logarithmic functions, and sums, products, quotients, compositions, and inverses of these functions. Integrate such functions using methods up to and including substitution. Use the first and second derivatives and asymptotics of a function to obtain qualitative information about that function, such as intervals of increase or decrease, concavity, maxima and minima, existence and uniqueness of roots. Use this information to sketch the graph of the function Use derivatives to solve applied problems involving rate-of-change, linear approximation, and optimization. Understand the meaning of core calculus concepts in simple applications to physics, engineering, economics, biology and other sciences Use integration to compare areas under curves, volumes and surface areas of rotationally symmetric solids Have sufficient abstract conceptual understanding of continuity, derivatives, integrals, and antiderivatives to understand the main ideas in the proofs of some of the major classical results of calculus and understand and use the statements of others

Calculus II

Fleming College (TBA) Course Learning Outcomes	**Trent University (MATH 1120H) Course Learning Outcomes**
Compute definite and indefinite integrals of many functions using various substitutions, integration by parts, and/or partial fractions Identify and evaluate improper integrals Use integrals to compute the arc-length of curves, the areas of surfaces of revolution, and centres of mass of various objects Compute limits of sequences, using both direct (*e.g.*. algebraic) and indirect *e.g.* squeeze-play) methods Use various tests to determine whether a given series converges or not, and be able to compute the sum of some (*e.g.* geometric series) Use various tests to determine the radius and interval of convergence of a power series Use Taylor's formula to find the Taylor series of a function at a point, and be able to use a remainder term to estimate how close a Taylor polynomial is to the original function Recall various abstract concepts such as continuity, derivatives, integrals, and antiderivatives to understand and apply the main ideas in the proofs of some of the major classical results of calculus.(e.g. the Comparison and Ratio Tests) Recognize various abstract concepts of calculus (as listed above) to understand and apply them (e.g. term-by-term differentiation and integration of Taylor series inside the radius of convergence	Compute definite and indefinite integrals of many functions using various substitutions, integration by parts, and/or partial fractions Identify and evaluate improper integrals Use integrals to compute the arc-length of curves, the areas of surfaces of revolution, and centres of mass of various objects Compute limits of sequences, using both direct (e.g.. algebraic) and indirect e.g. squeeze-play) methods Use various tests to determine whether a given series converges or not, and be able to compute the sum of some (e.g. geometric series) Use various tests to determine the radius and interval of convergence of a power series Use Taylor's formula to find the Taylor series of a function at a point, and be able to use a remainder term to estimate how close a Taylor polynomial is to the original function Have sufficient abstract conceptual understanding of continuity, derivatives, integrals, and antiderivatives to understand the main ideas in the proofs of some of the results and techniques used in the course (e.g. the Comparison and Ratio Tests), and the statements of various others well enough to use them (e.g. term-by-term differentiation and integration of Taylor series inside the radius of convergence)

Biology I

Fleming College (TBA) Course Learning Outcomes	**Trent University (BIOL 1020H) Course Learning Outcomes**
Describe examples of biological interactions that occur from the individual to the ecosystem level of organization	Understand biological interactions that occur from the individual to the ecosystem level of organization
Explain the importance of biodiversity and the factors that influence it	Understand the definition of biodiversity and factors that influence it
State the basic principles of evolution, including historical aspects, key processes, and current thinking on the origin and history of life	Understand the basic principles of evolution (historical aspects and key processes)
Apply knowledge gained from the course to investigate current issues in biodiversity	Understand the current thinking on the origin and history of life
Apply the scientific method to plan and carry out laboratory investigations and field work within a collaborative group	Gain an appreciation for the importance of an understanding of biology as an informed citizen
Select and use appropriate numeric, symbolic, graphical, and linguistic modes of representation to communicate scientific ideas, plans, and experimental results	Use the scientific method as it applies to biology
	Carry out the independent laboratory and field work
Communicate the procedures and results of scientific investigations by displaying evidence and information, either in writing or using a computer, in various forms, including flow charts, tables, graphs, and laboratory reports	Develop the habit of taking clear and useful notes while doing lab and field work
	Analyze data and use introductory statistics
	Critically evaluate your own work and the work of others
	Communicate scientific findings
	Write a clear, concise and well-organized and well-produced report
	Practice asking questions and seeking ways to answer them
	Appreciate the advantages and constraints of working in small groups
	Synthesize and apply knowledge gained from the course

Biology II

Fleming College (TBA) Course Learning Outcomes	**Trent University (BIOL 1030H) Course Learning Outcomes**
Describe, at a basic level, the molecular processes underlying cell structure and function, including differentiation into various cell types, metabolism, the cell cycle, and cellular basis of disease Explain how genetic mechanisms relate to the evolution and development of various organisms Analyse current biological research and issues using a basic knowledge of molecular biology and critical thinking skills Apply the scientific method to plan and carry out laboratory investigations within a collaborative group Select and use appropriate numeric, symbolic, graphical, and linguistic modes of representation to communicate scientific ideas, plans, and experimental results Communicate the procedures and results of scientific investigations by displaying evidence and information, either in writing or using a computer, in various forms, including flow charts, tables, graphs, and laboratory reports	Have a basic understanding of the molecular process underlying the cell Be familiar with cellular types, processes, diseases and cycles Understand genetic mechanisms related to evolution and development of various organisms Be able to design and carry out controlled experiments Be able to write the results of a laboratory experiment in a proper scientific format Develop critical thinking and analysis skills of current biological research

Appendix 3.0 - Course Development Approvals

Trent Course	Fleming Course	Existing or new development	Faculty Feedback	Approval
Business Administration Stream				
ADMN 1021H	ACCT 72	Existing		Approved equivalency
ADMN 1000H	BUSN 188	Existing	-courses are different both in terms of content and work produced by student -course requires research proposal and paper with multiple reviewed sources -course is light in elements of critical thinking exercises and academic research	Not constituted as equivalent. New course development required
ADMN 1000H	TBD	New Development		Approved equivalency
ECON 1010H	BUSN 18	Existing		Approved equivalency
ECON 1020H	BUSN 13	Existing		Approved equivalency

Trent Course	Fleming Course	Existing or new development	Faculty Feedback	Approval
Science Stream				
MATH 1001H	TBD	New Development		Approved equivalency
MATH 1110H	TBD	New Development		Approved equivalency
MATH 1120H	TBD	New Development		Approved equivalency
BIOL 1020H	TBD	New Development		Pending submission of additional information and Trent faculty review
BIOL 1030H	TBD	New Development		Pending Trent faculty review

[END OF DOCUMENT]