

Report on the Faculty of Science 2007-2011 Academic Plan: Progress on Implementation and Changes to Plan

(as of November 19, 2007)

The 4-year Academic Plan was prepared in the fall of 2006 and submitted along with its companion 4-year Budget Plan in November 2006. The following progress report and update forms part of the fall 2007 planning process.

The report consists of a series of mini-reports & updates, one for each Secs. C – J of the Academic Plan. Secs. A (Preamble) and B (Vision & Objectives) are expository and are thus not further discussed here.

C. Academic Staff, Support Staff, & Research Staff

Tenure-track/tenured academic staff (faculty) (*Progress report*)

There were 10 tenure-track/tenured appointments and 5 limited term appointments in the first year (2007-08) of the current four-year plan (includes all released positions with an approved start date in 07-08). Two of these were funded by UPIFs awarded for 07-08. The Faculty was given permission to split an unfilled CRC 1 into two CRC 2's one of which has been filled and the other of which is in the recruitment phase with an anticipated start date of July 2008. Three UFA applications were successful in the 2007 competition (one in Physics & Astronomy, one in Biology, and one joint Biology-Applied Math). The Biology-Applied Math candidate subsequently withdrew and the other two candidates took up their appointments in the summer of 2007. For the last UFA competition (2008), the Faculty adjudicated an internal competition for permission-to-recruit a UFA candidate and approved three applications to go forward to NSERC (two in P&A and one in Earth Sciences). No NSERC Industrial Research Chairs (IRCs) were established in 2007-08. Two IRCs are currently under development in two Departments and both have a reasonable chance of securing the required industrial sponsor. In both cases, the IRC would likely commence in 2009-10 or 2010-11.

Professional development for new faculty (*Progress report*)

A new program to provide accelerated professional development for academic faculty (tenure-track & limited-term) was proposed in the Academic Plan. This program, now known as the New Faculty Network (NFN) was created in the spring/summer of 2007 by a steering committee chaired by the Faculty's Learning Development Coordinator, Tom Haffie, who also coordinates delivery of the program. The NFN was launched August 2007 and will run throughout the fall & winter terms of 2007-08. It is targeted towards relatively new faculty members (the vast majority of participants are in the 1st or 2nd year of appointment) but is open to all. The program covers a wide variety of topics and all aspects of an academic job description in the areas of research, supervision, classroom teaching, service, outreach, etc. Some components or modules consist of faculty workshops, training, and courses already offered at Western. The program will be assessed by the Steering committee in the spring of 2008 with adjustments being made based on participation rates in the various modules, feedback, and an anticipated reduction of newly appointed faculty members (i.e., of potential participants) in years 2, 3, and 4 of the planning cycle.

Women in Science Initiatives & Related

(1) Postgraduate and Faculty Women in the Faculty of Science (*Progress report*)

This program is in its 4th year of operation under the leadership of the Coordinator, Betsy Skorakis-Doyle. A steering committee was established in the fall of 2006 to assist the Coordinator with long-term planning and the determination of annual programming. Their goal is to further develop initiatives aimed

at supporting career development of women faculty, post-doctoral fellows and graduate students. Over the next four years, the goal is to build the program on the foundations established in 2004-2006. In 2007-08 an annual visitorship has been initiated under which prominent woman scientist from the academy, government or industry spends several days on campus to promote participation and retention of women in science careers through seminars, lectures and discussions (inaugural visitor was Dr. Margaret Ann Armour, University of Alberta). A comprehensive web site for activities, programs, and resources to support of female scientists and the women in science program was launched in the fall of 2007.

(2) Measures to improve gender balance in faculty complement (*Progress report*)

The gender balance has improved significantly over the last four years. The fraction of full-time female faculty has increased from 12.8% in 2003-2004 to 17.4% in 2006-07 to 21% in 2007-08). Of 3 NSERC Industrial Chairs/Associate Chairs and 17 CRCs, 2 and 5 are held by female faculty members, respectively. Seven female faculty have been awarded NSERC UFAs in the past 5 years and three UFA applications were submitted in October 2007. Recruitment of female faculty will continue to be supported by the University policy of providing 50% of non-externally funded salary in 1st year of appointment.

Assistant Dean Diversity & Outreach (*Update*)

This is a new proposed decanal level position with responsibility for:

- enhancing the recruitment & retention of undergraduate students, graduate students, postdoctoral fellows, and faculty who are female or from other under-represented groups as identified by the Equity Office.
- lead the creation of Faculty practices, policies, or guidelines that (i) speak to the behaviours that are expected and identify those that are not tolerated, (ii) provide an orientation for new staff, faculty and students that is welcoming to all and which celebrates diversity, (iii) provide for workplace audits; (iv) create opportunities for faculty, staff, and students to become sensitive to unconscious biases or exclusionary behaviours.
- assessment of workplace culture reports/audits, and development of strategies to remediate workplace cultures identified as deficient.
- developing & implementing a Faculty plan for outreach to all sectors including elementary & secondary school students and teachers, the community at large, appropriate community groups, alumni, regional businesses and industries, government
- coordinating all outreach activities emanating from the Faculty Office and maintaining an inventory of Departmental outreach activities
- serve as Dean's delegate on all Appointment Committees in the Faculty.
- participate in annual probationary interviews of faculty from under-represented groups.
- serve as a liaison between the Faculty and Faculty Relations, Human Resources, and other centrally offered services/programs that align with mandate of the position
- contribute leadership and innovation to centrally sponsored programs and initiatives

The intention is to recruit during first half of 2008 so that the first incumbent might take up the appointment July 1, 2008 for a two or three year term.

A PASF to support the women in science program and the new Assistant Dean position has been submitted as part of the fall 2007 budget plan update.

Details: \$10K per annum for years 2, 3, and 4 of the current planning cycle.

D. Undergraduate Education: Students & Programs

The Interdisciplinary Curriculum Committee (*Progress report*)

It was established by the Dean in the summer of 2007. It is responsible for stewardship of existing interdisciplinary modules, proposing and vetting proposals for new interdisciplinary modules, and recommending the deletion of modules with chronically low enrolments or insufficient support from participating departments

The Dean's Advisory Committee on Science Education (*Progress report*)

This has been formed and will begin meeting in January 2008 with the goal of producing a white paper (target is summer 2008) to provide a blueprint for the development of science curriculum, degree programs, and career development for students for the remainder of the current 4-year planning cycle and into the next one.

BMSc program (*Progress report*)

Beginning in 2007-08 students entering the BMSc program in Year 3 will graduate with a BMSc degree, as long as they meet the minimum requirements. Students not admitted to the BMSc program after Year 2 will not be able to register in the BMSc at a later date. The practical implication is that the vast majority of BMSc students will be admitted to the program upon entry to year 2 and proceed through years 3 and 4 to a BMSc degree. This will greatly reduce the past practice of "shadowing" the BMSc course requirements in order to pave the way for possible admission upon entry into year 3 or year 4. Furthermore, BMSc enrolments in each of 3rd and 4th year have been capped at 370 (previously uncapped) with the result that there should be more 3rd & 4th year students registered in the Faculty of Science than in the previous few years when 3rd & 4th year BMSC enrolments exceeded 400.

Counselling Service (*Progress report*)

A thorough review of every aspect of the current counseling operation was performed by three external reviewers in February 2007. The ensuing report contains an extensive set of recommendations, the vast majority of which are being, or will be, implemented. The leading recommendation is the creation of a new senior staff (PMA) position of Academic Manager to oversee the counseling operation and improve the quality of counseling services available to undergraduates. This position is currently being advertised with the goal of having the 1st incumbent in place by February/March 2008.

Career Services (*Progress report*)

A new career services staff person (0.5 FTE) has been added, effective Sept. 2007. The primary role is to find the mandated spring/summer work-study placements for the 24 students in the new Masters of Environment & Sustainability program. In addition, the incumbent will assist the Employer Relations Officer in expanding the number of potential industrial placements for the Faculty's undergraduate Internship Program.

Learning Development Coordinator* (*Progress report & update*)

The Academic Plan calls for this position to be created for the 2007-08 academic year and filled on a part-time basis by a science faculty member with suitable expertise and track-record in teacher development and the scholarship of teaching & learning. Tom Haffie accepted a one-year renewable appointment, effective July 2007. The Learning Development Coordinator (LDC) is responsible for assessing current levels of student engagement in academic studies and student learning, and for devising and implementing interventions and/or program reform to improve engagement and learning in consultation with students, instructors, and Departments. In addition the incumbent coordinates the New Faculty Network (described earlier) and maintains his pre-existing involvement with the Teaching

Support Centre. It is anticipated that the workload will expand from the current 2 days per week to 3 days per week in 2008-09.

A PASF to support the Learning Development Coordinator position and a major Faculty-wide student learning development initiative has been submitted as part of the fall 2007 budget plan update. Details: ~\$60-70K per annum for years 2, 3, and 4 of the current planning cycle.

* In the Academic Plan prepared in November 2006, this position was called "Teaching Development Coordinator". The name was changed in the spring of 2007 to reflect the Faculty's focus on creating a learning-intensive environment for students

E. Graduate Education: Students & Programs

Creation of New Programs (*Progress report*)

The following programs have been accredited by OCGS since submission of the Academic Plan in November 2006:

- Masters in Environment and Sustainability [type 2, accredited in summer 2007; began operation in September 2007 with enrolment of 24]
- Collaborative Program in Environment and Sustainability (MSc and PhD; formerly Environmental Science) [accredited in Nov. 2007; current enrolment is 36]
- Collaborative Program in Planetary Science (MSc and PhD) [accredited in Oct. 2007; will begin accepting students in Jan. 2008]
- Geophysics (MSc) [category 2; approved by FGS with OCGS consent in spring 2007; delayed start due to resignation of Dr. D. Eaton in Oct.2007]

The following programs are at various stages of development:

- Collaborative Program in Financial Mathematics (course-work MSc, PhD)
- Bioinformatics (MSc and PhD)
- Materials Science (MSc and PhD)

Accreditation is expected in latter part of 2007-08 or first half of 2008-09

Enrolment Situation at Nov. 1, 2007 and Projections (*Progress report*)

The Faculty of Science has increased its total graduate student enrolment by 56 % from 185 MSc and 172 PhD students in 2000-01 (baseline year) to 284 MSc and 282 PhD students in 2007-08 (based on count at Nov.1, 2007). The growth over the baseline year in MSc and PhD is 54% and 64%, respectively. The Faculty of Science aims to achieve a graduate enrolment complement that reflects a ratio of graduate students per tenured/tenure-track faculty member of 3.5:1, a ratio that would currently place Science in the upper half of Faculties of Science (or equivalent) in the G13 comparator group. The ratio as of Nov. 2007 is 3.0:1 (556 students and 188 tenured/tenure-track faculty) which is up from the ratio of 2.8:1 at November 2006). With an anticipated faculty complement of approximately 182 by 2010-11, this 3.5:1 target ratio translates into target of approximately 640 graduate students which represents an increase of ~ 80%. Using a linear growth scenario to measure progress provides a simple tracking tool: Linear growth for a decade with Nov. 2000 as the baseline would imply that 7/10ths of the target of 80% growth, i.e., 55.5% growth, would be achieved by Nov. 2007. The actual growth is at Nov. 2007 is 56%.

Enhanced grad funding model (*Progress report*)

For the 2007-08 academic year the Faculty introduced an incentive-based funding model for incremental growth in domestic graduate enrolments (over Nov. 2006 baseline) on a departmental basis. This scheme is entirely analogous to the Provost's GEF+ funding scheme for incremental domestic growth at the Faculty level. In December 2007 or January 2008, each Department will receive \$7K per incremental

domestic student over the 2006 baseline. The \$7K consists of the GEF+ (\$4K) and the Faculty of Science GEF++ (\$3K; funded by a UPIF spanning years 1-4); the \$7K goes to the Department but must be allocated to direct support of graduate stipends. In addition for 2007-08, the Faculty provided a \$1700 entry scholarship to **all** newly enrolled domestic graduate students. This scholarship combined with the WGRS at \$3750 approximately covers the cost of domestic tuition. The GEF+/GEF++ incentive scheme and the entry scholarship will be continued for 2008-09. In addition, a full Teaching/Research Assistantship (\$10,700) will be awarded for each incremental domestic student in Departments where there is demonstrated need. With this multi-component finding package we have attempted to lower significantly, if not remove, the stipend support obstacle to graduate student enrolment growth.

E.3 Professional Development for Graduate Students (*Progress report & Update*)

As outlined in our planning document last year and to address a need identified in the Faculty of Science annual survey of undergraduates in Science, we have embarked upon a 4-year plan to enhance the graduate student experience for our international graduate TAs and the learning experience of Science undergraduates. The Science Teaching Assistantship Training (STAT) program has as its goals to develop discipline- specific TA materials for each of the 8 Departments in Science. Building on the successful Chemistry pilot project last year, discipline-specific materials designed to improve the teaching abilities of the TAs, with obvious concomitant benefits for the undergraduates, will be developed, in collaboration with the Teaching Support Centre, at a rate of two per year according to the following schedule:

2007-08	Biology + Physics
2008 -09	Mathematics + Applied Mathematics
2009-10	Earth Sciences + Astronomy
2010-11	Statistics and Actuarial Sciences + Computer Science

F. Research

Research personnel (*Update*)

Undergraduate summer research: The search for funding to establish a set of summer undergraduate research assistantships to be awarded on a competitive basis across the Faculty has been shifted to from a UPIF request to the upcoming major fundraising campaign.

Postdoctoral fellowships: The search for funding to establish systematically a set of Postdoctoral Fellowships (two-year tenure) to be awarded in a cross-Faculty competition has been shifted to from a UPIF request to the upcoming major fundraising campaign.

Applied research (*Progress report*)

A Technology Transfer & Business Development Office (TTBDO) was created by Industry Liaison and the Faculty of Science; the first incumbent (Patrick Therrien) took up the position in July 2007. The TTBDO reports to Industry Liaison but is “embedded” in the core departments by virtue of an office in the Faculty of Science precinct and a mandate to talk to researchers on a daily basis. This is a pilot project in Years 1 and 2 (07-08 & 08-09) for which funding is provided from the Faculty allotment of research contract overhead funds. If the pilot is successful, the position will become permanent in which case funding would be sought from some combination of a UPIF (possible application in fall 2008) and Industry Liaison. Synergies and collaboration with Career Services personnel are expected in the area of placements of the Internship Program.

Organization of research enterprise (*Progress report & Update*)

The previous Academic Plan (2003-07) called for a review of the Faculty's five themes near the end of the mandate of that plan. Accordingly, a formal review of each theme has been undertaken in the 2007 calendar year. A team of 2-3 external reviewers for each theme was selected by the Associate Dean Research in consultation with a small (4-5 faculty) ad hoc stakeholder group. The reports of the reviewers will provide an assessment of the themes plus advice and recommendations to the Dean. Four of the five reports have been received and the 5th is expected in November 2007. A report on the operation and use of the Environmental Research Station (commonly known as the "farm") has been commissioned by the Dean and is expected in November 2007. Surface Science Western prepared a long-range operations and business development plan in the spring of 2007. An ad hoc committee, commissioned by the Dean and chaired by the Associate Dean Research, has prepared a report and recommendations for a new management approach and organizational structure to provide coherent and visionary stewardship over the Materials & Biomaterials research theme, the largest research enterprise among the Faculty's five themes.

In the first six months 2008, the Faculty will prepare a strategic research plan for the five-year period 2008-09 to 2012-13. The development of the plan will be led by the Associate Dean Research and informed by:

- consultations with stakeholders in the Faculty and cognate stakeholders in other Faculties
- the reviewer reports on the 5 existing research themes
- internally generated reports from the major research facilities (Sharcnet, Biotron, Nanofab lab, Environmental Research Station, the Elginfield Observatory)
- the University's new Strategic Research Plan (2007?) and the University Strategic Plan (2006): *Engaging the Future*
- existing and anticipated relationships with external organizations, including Fields Institute, Perimeter Institute, Institute for Catastrophic Loss Reduction, University of Guelph and Agriculture Canada (in connection with the Biotron), Canadian Light Source, Ontario Photonics Consortium

International research

1) Formal arrangements with other universities (***Progress report***)

The development of definitive, Faculty-wide programs that enable sustainable research efforts involving international partners has not yet occurred and remains both a challenge and an opportunity for the Faculty of Science. The primary goal remains the establishment of a well-defined, formal collaborative arrangement involving graduate students and research between the Faculty of Science and one foreign partner institution. It is recognized that formal arrangements are preceded by extensive exploratory discussions, exchange visits, and trial collaborative research projects by individual faculty in order to build a relationship to the point where an agreement can be undertaken at the institutional level. Thus a parallel objective over the next three years is creation of new links with Thus a parallel objective over the next three years is exploration of new links with a wide spectrum of Departments/Institutions on other continents. Between Nov. 2006 and Dec. 2007 meetings with senior administrators from universities from the following universities have, or will have, taken place:

- Université Joseph Fourier in Grenoble (UWO delegation including Associate Dean Research visited UJF, Dec.2006)
- Hong Kong Science & Technology Park (Vice-President visited UWO, Nov. 2007)
- National University of Rwanda (Dean to visit NRU, Dec. 2007, as part of senior UWO delegation)
- Chemnitz University (sr. administrator visited UWO in summer 2007)
- Consortium of French universities near Paris and in northern France (Associate Dean Research visited representatives of this consortium in Sept. 2007)
- Ongoing discussions to establish collaborations with India (Associate Dean Research, Lau, Lipson)

- Ongoing discussions to renew an exchange program with the federal universities in Fortaleza and Natal in Brazil (Associate Dean Research).
- Ontario-Baden-Wurttemberg program (Associate Dean Research met with visiting delegation in 2007)

2) International House (*Update*)

The Faculty of Science recommends that the campus master plan include on-campus accommodations for short-term visits (from several weeks to, say, 6 months) by international scholars. The lack of such a facility is currently a logistical and fiscal impediment. Such visits tend to play a leading role in developing and realizing concrete international agreements with other universities. Polling of a few of our sister Faculties about their need for short term housing for international visitors per year has yielded the following estimates: Engineering (14); FIMS (6); Schulich (15-20, plus 80 international students visiting UWO from 2-12 weeks); Science (20-25); Social Science (15-20). The estimated total is 150-165 international visitors per year.

Stewardship of grant and award applications (*Progress report*)

The Faculty of Science has established a rigorous process to pre-review in systematic fashion tri-council grant applications. Participation is voluntary and researchers who participate are given a \$1000 research grant in support of their own research program. This exercise is coordinated by the Associate Dean Research. Grants are reviewed by a pool of senior researchers, the vast majority of whom have served on NSERC grant selection committees. The uptake in the first year was 25 participants, higher than anticipated. The goal is to increase the success rate for tri-council funding and the average dollar value of individual NSERC Discovery Grants.

G. Space

The reader is referred to the updated space plan that accompanies the fall 2007 budget submission; it contains extensive modifications from the space plan prepared one year ago. The activity in space allocation and space renewal since submission of the Academic Plan and Budget Plan in November 2006 can be summarized as follows:

- Faculty-wide space policy was articulated in the 2007-11 Academic Plan
- Departments were asked to prepare space management & allocation policies in the winter of 2007
- Several minor reallocations of existing space within the Faculty;
- Reoccupation of a large fraction of the space refurbished in Phases 1 & 2 of the Biology & Geology renovation;
- No acquisitions of additional space.

H. Interdisciplinarity

Interdisciplinary Programs & Initiatives in Science (*Progress report*)

(i) Undergraduate programs

The *Materials Science program* (involving Physics & Astronomy, Chemistry, and Earth Sciences) has been thoroughly reviewed by the Interdisciplinary Curriculum Committee. Major revisions have been proposed and stakeholders consulted. It appears that these changes will go into effect for Sept. 2008. The goal is to develop an attractive yet rigorous program that will attract more than the very small numbers who have taken this program to date.

The Interdisciplinary Development Initiative (IDI) entitled “*The Interface of Science and Medicine*” received one-time funding in July 2008 to develop two undergraduate half-courses in medical physics. These courses will be offered and launched in the 2008-09 academic year and co-taught by instructors from Physics & Astronomy and Medical Biophysics.

(ii) Graduate programs

The *Masters in Environmental & Sustainability* is an interdisciplinary graduate program (Science is host Faculty; Engineering & Social Science are participating Faculties) was approved by OCGS in summer 2007. This one-year, category 2 Masters program began operation in Sept, 2007 with an enrolment of 24 students. A Steering Advisory Committee was formed in Oct. 2007.

The *Collaborative Program in Environmental & Sustainability* is a revised and renamed version of the previous *Collaborative Program in Environmental Science*. The revised program was approved by OCGS in November, 2007. Enrolment for 2007-08 (Nov. 1, 2007) is 36 students, consisting of 16 Masters students and 20 PhD students from 10 departments in four Faculties.

The *Planetary Sciences program* (involving Physics & Astronomy and Earth Sciences) was approved by OCGS in October, 2007 and will begin accepting students in January 2008.

(iii) Environment & Sustainability Initiative

An Interdisciplinary Development Initiative in *Environmental & Sustainability* was approved in July 2008 and funded in the amount of \$560,000 over three years. The initiative will combine interdisciplinary graduate, undergraduate, and continuing education with research activities in the area of environment and sustainability. Over 70 faculty members from the three participating Faculties as well as several other Faculties have expressed interest in participating in activities of the initiative.

This initiative will be co-managed by Science (host Faculty), Social Science and Engineering (participating Faculties) via a Steering/Advisory Committee (SAC) consisting of decanal and faculty representatives from the three Faculties. The SAC has been formed and held its first meeting in October. The first step (winter 2008) will be to obtain formal “Centre” status for this initiative. Among other things, the centre status encodes a governance model and an administrative structure that includes a Director. The next step (spring 2008) is to initiate an open search for the Director. IDI funding, combined with matching contributions from the three participating Faculties, will be used as seed money to appoint three inaugural faculty members (including a Director) to the nascent school. This core group will coordinate the development of an academic plan for the Centre and, in due course, a detailed proposal for a School of Environment & Sustainability as an academic unit at Western. Initially, the Centre for Environment & Sustainability will incorporate the existing research Centre (Environmental Research Western), as well as the Graduate Program in Environment & Sustainability, and the Undergraduate Program in Environmental Science. Comprehensive, pan-Faculty interdisciplinary undergraduate programming in the environment and sustainability will subsequently be developed.

H. External Relations

(1) Formation of Western Science Corporate Council (WSCC) (*Progress report*)

The external membership of this Council will consist primarily of leaders/decision makers from a broad range of corporate and industrial sectors aligned with academic programs and research within the Faculty of Science. At steady state it will have about 20 external members and 5-10 internal members. The WSCC will replace the Science External Advisory Council which was disbanded at the end of 2006. The terms of reference for the new Council have been drafted. The formation of the Council has been delayed

by approximately one year in order to allow the Dean sufficient time to identify a larger number of potential Council members from a wider array of industrial, corporate, and government sectors. It is now anticipated that the Council will be recruited in the Spring of 2008, with the first meeting occurring in the Fall of 2008, possibly at the time of the official opening of the Biotron.

(2) External Relations Manager (Update)

This is a new position whose purpose would be to implement external relations objectives delineated in the 2007-11 Academic Plan and coordinate the ever-broadening spectrum of external relations activities at the Faculty level. The creation of this position is contingent of the availability of funding. Given that this position would report to the (new) Assistant Dean Diversity & Outreach who is expected to be in place July 1, 2008., it makes sense to defer consideration of the Manager position until the fall 2008 budget update by which time the Assistant Dean will have had time to prepare a long-term plan for the Diversity & Outreach portfolio.

I. Performance Indicators and Comparative Assessments (Update)

The Faculty will adopt quantitative performance indicators enabling a balanced evaluation of undergraduate programs, graduate programs, and research. Wherever possible indicators that achieve the dual purposes of self-tracking over a period of time and comparison to Faculties of Science (or equivalent unit) at the G13 universities will be selected. This is a work in progress and the putative indicators are listed below. These indicators have been selected on the assumption that the relevant data and survey results are available from external sources (normally central administration) so that the Faculty itself will not need to be involved in data gathering. Appropriate baseline years for each area need to be established and, in the case of graduate & undergraduate surveys, an appropriate small subset of survey questions needs to be selected as the indicators.

These decisions will be made by the Faculty's Associate Deans in collaboration with Department Chairs and IPB.

Research:

- Average NSERC Discovery Grant per eligible faculty member
- Average number of refereed publications per full-time faculty member.
- Ratio of full-time graduate students to full-time tenure-track/tenured faculty
- Total number of each of contracts, patents, licensing agreements, and software releases

Graduate Education:

- Selected questions from the Graduate and Professional Student Survey (include the lead question "What is your overall experience at this University plus a suite of representative questions from the various survey subsections)
- Fraction of graduate students holding major external scholarships, such as NSERC, OGS, etc.

Undergraduate Education:

- Selected questions from NSSE (survey is conducted biannually; use a suite of 5-10 representative questions)
- Selected questions from Western's Survey of Graduating Students (survey is conducted annually; use a suite of representative questions).