FRESHMAN INTEREST GROUP PROPOSAL

OBJECTIVE

Recognizing the daunting task that many Freshmen students face when making the transition from high school to university, the Science Undergraduate Society (SUS) is proposing the implementation of Freshmen Interest Groups, "FIGs," in a program that will pair U0 science students with a science professor and an upper year science student.

The principles of the FIG program will be to create a mentorship and seminar type setting that will be more personal than the large freshmen science classes. These seminars will include discussions related to gaining research opportunities and learning to navigate and analyze scientific literature effectively. Other topics covered will include time management, problem solving, using university resources effectively and getting the most out of the university experience.

The SUS sponsored FIGs program has adopted five main aims:

1. Ease entering students' transition to college
2. Make the campus psychologically small by creating peer reference groups
3. Encourage group identity development
4. Provide an integrated learning experience for freshmen by connecting faculty, students, disciplines, and campus experiences in a purposeful, coherent, and seamless fashion
5. Enhance students' academic and social success[1]

With the cooperation of the Faculty of Science at all levels, the SUS is confident that the FIGs program will be of benefit to not only science students, but to the identity of the Faculty of Science as well.

BACKGROUND

The idea of FIGs is one that has been successfully implemented at many colleges and universities in America, such as the University of Washington, the University of Houston and the University of California, Santa Cruz.

The widespread implementation of FIGs has provided ample models for a program that the SUS seeks to adopt. In most FIGs models, students opt to be placed in the program when they register for courses. The students are then placed in groups, the criteria for

[1] "FIG Goals" University of Missouri-Columbia 1 Aug. 2005 <http://www.missouri.edu/~figwww/goals.html>

which are three or four of the same courses and similar interests. For example, one FIG would focus on science and sociology, while another would have an emphasis on business. While there is not as much flexibility in course choices for McGill Science freshmen, most freshmen will attend a biology, physics, chemistry and calculus course and could equally be grouped together based on the level and type of courses they have chosen.

The FIG model in use in several American colleges appears similar to the idea of credit-based First Year Seminars (FYS) offered to freshmen at McGill University. FYSs have had positive feedback from most freshmen students able to attend, however, not all students get to take part in an FYS due to limited enrollment space or scheduling conflicts. Since these courses are only offered to first year students, many students miss the opportunity to participate. The implementation of FIGs will ensure more students have an experience similar to FYSs while also ensuring students are coping with the transition to university life and its academic expectations. Furthermore, the FIGs are intended to contribute to the academic experience of freshmen by broadening their minds without significantly increasing the freshmen workload.

PILOT PROGRAM

The SUS will run a pilot program in reduced numbers to grasp whether a FIG program will be suitable for McGill Science freshmen.

The initial program will consist of five or six FIGs each including:

- 10-15 freshmen students
- one professor
- one upper year (U2 or U3) undergraduate or graduate science student helper

Each FIG will meet once every two weeks for roughly an hour at a time, most likely in the afternoon to fit around class, lab and tutorial schedules.

The role of the professor would be to act as a mentor and advise students to the best of his or her capacity. The professor will also be able to lead discussions and discuss his or her research with the students. Other potential topics are:

- Applications of that professor's research to the real world
- How to go about starting a project, finding funding, writing grants
- How to read a journal article and understand the fundamental points (required for many upper level courses)
- Discussions of current, important, controversial topics in science
- Discussions on science in the news
- Advice for those wanting to pursue graduate studies
- What is available as a career in science aside from research and medical school

The role of the student helper will be to act as a resource for students and discuss topics related to adapting to the university and academic lifestyle. Student helpers could facilitate discussions introduced by the professor, as well as aid in the preparation of lessons and planning of field trips.

Both professors and upper year undergraduate students participating in the FIGs will be briefed and receive appropriate training prior to the first session with students. For the purpose of the pilot program, the student helpers will most likely consist of the members of the SUS committee implementing the program. This will allow the committee to analyze the progress of the program and determine where improvements and changes could be made.

PURPOSE

As previously stated, the main purpose of the FIG program is to create a mentorship and seminar type setting that will help freshmen students adapt to the academic demands of university. There exist, however, benefits to the involved parties at all levels.

Benefits to the students

- Exposure of students to research (with a potential for collaboration with the Office for Undergraduate Research)
- Opportunity for small group interaction, since most freshmen science courses have large enrollments
- Potential for study groups since most of the FIG members will be taking the same four basic science courses (Biology, Calculus, Chemistry and Physics)
- Opportunity to educate students on what options are available in terms of careers upon graduation
- Potential for field trips
- Opportunity for students to gain references from professors
- Interaction with a professor through FIGs will make students more at ease with professors so that they are not too intimidated and therefore will feel comfortable approaching them.

Benefits to the professors

- Opportunity for associate professors seeking the tenure track to gain experience interacting with students
- Opportunity to get volunteers in their lab
- Potential recruitment of future graduate students

Benefits to the Faculty of Science

- The FIG program incorporates many fundamental elements that were recommended in the *Boyer Report*, such as promoting community, mentorship opportunities and encouraging interaction between students and professors[2,3]
- Opportunity to make students aware of the services offered by the Faculty of Science and McGill
- Opportunity at the end of the semester to have focused discussion groups for the improvement of courses, instead of the often inflexible and difficult to navigate class evaluations. Also, if evaluations are done in this setting, it will ensure maximal participation
- Excellent way to educate students early in their academic career on the issue of plagiarism and how to avoid plagiarism
- Opportunity to make students aware of the rules and regulations for taking exams as to avoid cheating

FIG FEEDBACK AND STUDENT SATISFACTION

Beyond the assertion by students from American colleges where FIGs have been implemented that the FIG program eased the transition from high school to college, a study conducted by the University of Missouri has asserted further benefits.

Short-Term Benefits:

1) **Higher Retention Rates**- Of the 225 students who participated in the FIGs program in the fall of 1995, all but ten were enrolled for the winter term, a 96 percent retention rate. In comparison, the fall-to-winter retention rate for other students was 91 percent. FIG participants also had significantly higher one-year retention rates than non-FIG students: 87 versus 81 percent.

2) **Higher GPAs**- Even after controlling for entering ability, grades for FIG students were significantly higher than those of other students. Students participating in the FIG program had a mean GPA of 2.89 compared to a mean GPA of 2.66 for non-FIG students. FIG participants also had significantly higher winter semester and cumulative grade point averages than other students (though these differences were not statistically significant after controlling entering ability).

3) **Satisfied Students**- 85 percent of FIG participants said they would recommend the program to a friend and an additional six percent said they would recommend the program with minor modifications. Out-of-state and minority students expressed particularly high levels of satisfaction with the program. Furthermore, parents expressed uniformly positive feelings about the program.

4) **Higher levels of faculty-student interaction and interaction with peers; interactions that are more academically and intellectually focused.**

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[2] "Outline Summary of Boyer Report Recommendations" West Virginia University. 2001 <http://www.as.wvu.edu/~lbrady/boyer-report.html#IX.%20Change%20Faculty%20Reward%20Systems>

[3] "The Boyer Commission on Educating Undergraduates in the Research University Reinventing Undergraduate Education: A Blueprint for America's Research Universities" The Boyer Commission. 1998. Stoneybrook State University of New York. 2001 <http://naples.cc.sunysb.edu/Pres/boyer.nsf/>

Longer-Term Benefits:

A follow up study of the same students using the same measures demonstrated that the positive effects of FIGs persisted throughout the college career. In some areas other students caught up to their FIG-participant peers, but for some of the factors most important to student success, the gap between FIG students and other students increased over time.

1) **Higher GPAs**- Even after freshman year, students who participated in the FIG program earned higher cumulative GPAs than other students.

2) **Greater gains in Academic Experiences and Campus Involvement**- Scales measuring students' experiences in writing, their involvement in clubs and organizations and the quality of their experiences with faculty all indicated that FIG students continued to gain more than other students.

3) **Higher "selective" Retention Rates**- 82 percent of the FIG students achieved at least 24 credit hours and a GPA of 2.00 or higher; only 74 percent of other students met this standard.[4]

FUTURE DIRECTIONS

Future directions for the McGill FIGs program include the following:

- Administering a survey to students prior to attending McGill in order to match students to specific professors. For example, if the student shows more interest in a professor related to the physical, the natural or the biological sciences they will be placed with a professor in the appropriate area
- Implementing the FIGs program as an additional one-credit per semester seminar on the S/U option
- Expanding Webct to include a discussion forum for each FIG. Each professor could list questions and topics for discussion and grade students based on their participation in discussions
- Include incoming U1 students (Cegep students) in FIGs
- Expand FIGs or the professor-student relationship developed in FIGs to follow the students throughout their entire undergraduate degrees

CONCLUSION

The FIGs program represents a great initiative for the Faculty of Science. This program is an opportunity to demonstrate leadership within the McGill community and create an academic example that will increase the success of its students. This program also represents an opportunity for McGill University to demonstrate innovation and to set an example for Canadian universities, since throughout the research conducted by the SUS regarding the FIG program, there was no indication of a similar program in Canada.

[4] "FIG Benefits" University of Missouri-Columbia 1 Aug. 2005 http://www.missouri.edu/~figwww/Benefits.html