*June 15, 2016* Faculty Workshop on

“*Assessment of Interdisciplinary Earth Sciences Course Infusion*”, STEP Center: Interdisciplinary Teaching of Geoscience for a Sustainable Future

Funded by Carleton College/NSF

**TEAM REPORTS SUMMARY**

Note: data were only evaluated for the traditional classes. The only online course infused (Business Communication) was not considered in our evaluation. This course was infused before the initial planning workshops and was taught for only 8 weeks.

1. Student information

Fig. 1 Students by classification (in %)

Fig. 2 Students by course level and focus area

Fig. 3 Students’ major in 100 level Natural Sciences infused courses

Fig. 4 Students’ major in 200 level Natural Sciences infused courses

Fig. 5 Students’ major in 200 level Social Sciences infused courses

Fig. 6 Student classification in natural sciences at 200 level courses

Fig. 7 Student classification in social sciences at 200 level courses

**Overview:**

* Student information was gathered from each individual faculty’s online roster (My Claflin) that provides information on students’ declared majors;
* Only two infused classes were at 100 level (UNIV and Biology), while all the others were at 200 level;
* There was a generally even distribution of freshman, sophomores and junior students from all four classification levels in the selected classes, with a higher % of seniors despite the selection of low level courses to infuse;
* A slightly higher % of students were majoring in natural sciences & mathematics vs. social sciences or humanities/education/business (54, respectively 46%);
* The 100 level classes were predominantly formed of students majoring in natural sciences (at 83%);
* The 200 level courses are formed of a mix of students from different majors, but with significantly higher percentages from the appropriate focus area; in natural sciences & mathematics Biology is predominant at 72% whereas in social sciences political science and criminal justice at 44% followed by psychology and sociology at each 13%;
* Interestingly, while as expected in 200 level courses there is a significantly higher percentage of students in their freshman year attending the social sciences courses, the situation is exactly the opposite in the natural sciences where the largest majority is formed of seniors and juniors.

1. **Pre- and Post-Survey Evaluation**

Fig. 8 Pre- and post-test means comparisons by type of science (considered based on departmental course affiliation)

Fig. 9 Survey completion (in %) by infused course

Fig. 10 Test means by class size and infused course

Fig. 11 Class size vs. student improvement

**Overview:**

* Post-survey results show an increase of 12% in students’ knowledge;
* Students enrolled in hard sciences classes have performed better in both pre- and post-tests;
* However, growth levels are consistent in both hard and social sciences (11.7, respectively 11.34 mean increase from pre-to post-test);
* 78.12% of all students completed both pre- and post-survey;
* All infused classes except for one registered increase from pre- to post-survey grades;
* There is some evidence that the most significant improvement was recorded in smaller classes of 8-13 students (except for the Freshman class where growth was slower despite the class size).

1. **Grades/assignments report**

Fig. 12 Final grades distribution in the 100 level natural sciences courses for the two-week infusion period

Fig. 13 Final grades distribution in the 200 level natural sciences courses for the two-week infusion period

Fig. 14 Final grades distribution in the 200 level social sciences courses for the two-week infusion period

**Overview:**

Note: the two-week infusion grade counted as 20% of the semester final grade for each course as stated in the course syllabus. Failing this section placed students in great danger of failing the entire course.

* At 200 level courses students performed very well, 86% and 72.8% of all grades in natural sciences, respectively social sciences resulting in As (in social sciences 15.3 % obtained B+)
* Significantly more students in social sciences (10.2% vs. 3 %) failed the infusion assignments as compared to those in natural sciences;
* At 100 level courses the situation was the opposite with 61% failing the infusion coursework and no As received.

1. **Faculty feedback/satisfaction report**

A 13 questions survey was given to each individual faculty attending the meeting (7 responses from faculty who infused) during the working lunch. The results are presented below:

Answers to open ended questions:

**How would you change or modify the content of the InTeGrate module?**

“Include more to show relationship between earth science and public health”

“Reduce; adjust to pertain to the subject area; project at the end of the semester to incorporate both InTeGrate content and area content”

“Have less assignments and work to be completed by the students”

“I will reduce amount of assignments and more focus on social science content.”

“Content was fine”

“Making it more course-specific”

“Reduce the amount of information and make it more focused elements pertaining to area study”

**How do you plan to sustain the program after the granting period ends?**

“Keep team connected; based on workshop 2 (summer) decision”

“Make adjustments to material to fit the course”

“Spread across the semester”

“Based on this experience, I will keep using some materials which students are interested and which are related to my discipline in my course”

“Implementing the integration for on ground sessions (instead of online)”

“Through general interaction in curriculum”

“By adjusting the material and looking for other grant opportunities to bring additional team members into the program as well as funding for more hands-on student oriented activities to complement the teaching of earth Sciences”

**General experience with InTeGrate?**

“Ver good experience. The integrated model provides additional insight into career paths.”

“Good but needs adjustment based on this year’s infusion results”

“Material presented was important but there were too many tasks to complete”

“It was useful experience to develop interdisciplinary course. Although this first attempt taught me that I need more practice and preparation, it would be a great resource for developing my new interdisciplinary courses in the future.”

“I had a good experience with the materials, information, etc.”

“Overall student interest was low although they were interested in the video on Katrina”

“Good, but difficult to both faculty teaching the materials and stimulating student interest and students to get immersed in what they perceive as a different field in such a short time frame. If adjusted, it can be great!”