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Information Literacy in the Discipline, Mellon Grant for Math 310 partnership with D. Roberts

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Integrating Writing and Information Literacy into MATH 310: Combinatorics and Graph Theory

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As of now, MATH 310 has neither a required writing component nor an assignment that deals with information literacy. We are proposing the implementation of a **new assignment** that would incorporate both of these components. This assignment would have multiple stages spread over approximately a one-month time period.

**The Assignment**

The overall focus of the assignment is to familiarize students with the mathematics research process, and particularly with current research being done in the field of combinatorics and graph theory. At the end of the assignment, each student will have read, understood, and communicated the results of one such research article.

Part I is composed of individual assignments, while parts II and III are group assignments. Ideally, groups will be of size 3.

**Part I**

(a) 3/17/2014 – Students will attend an instruction session in Ames 129 focusing on identifying a research database, determining what filters are necessary, developing the appropriate keywords, and finding an article.

(b) 3/21/2014 - Either during the library instruction session or shortly afterwards, students will find a research article on their assigned topic. In class on 3/21, turn in a brief summary of the results of the article.

**Part II**

3/28/2014 – By now, each group will have met and decided which paper will be used for the final presentation and will turn in a brief explanation of why this paper was chosen rather than the other two.

**Part III**

(a) 4/4/2014 - By 4/4 each group will turn in a short paper explaining the basic proof and results of their chosen article.

(b) 4/9/2014 - part III(a) will be returned to students with commentary, giving students enough time to adjust their understanding.

(c) Week of 4/14 – Students will give in-class, 15 minute group presentations of their research article to their peers.

**Information Literacy Outcomes for First and Second Year IWU Students**

This assignment will meet the following outcomes.

- **Students understand the role of academic librarians at IWU as it pertains to their coursework.** This will be met by Part I(a). This session will be conducted by a librarian, and will take place in the library.
• **Demonstrates basic familiarity with the Ames Library building.** This will be met by Part I(a). This session will take place in the library.

• Students will **utilize core library research tools.** This will be met by Part I(a) and (b). The students will need to find their own article, which forces them to search library databases, and possibly use the Ames catalog.

• Students will **understand the structure of information.** This will be met by Part I(b) and Part II. The students must understand keywords when finding their article. They will find many articles, and will need to narrow their search by reading abstracts.

• Students will **approach research as a process.** This will be met by Part II and Part III(b). First, students will individually find many articles, and narrow their choices based on a general reading of each one. Then the group must meet to narrow their collective choice down to one article.

• Students will learn to **effectively communicate their mathematical knowledge in both written and oral form.** This will be met by Part II and Part III. This is one of the math departments student learning goals. They must communicate their individual articles to their group and to the professor. They must also communicate their group article to the professor and to their colleagues.

**Support of the learning objectives for the course**

For some students, this will be their first 300-level mathematics course. It is important that they are exposed to what research in mathematics entails. This assignment will familiarize them with the body of mathematics literature, and hopefully with how to navigate the myriad journals. Moreover, it is important that students see that mathematics is an evolving field with current research being done.

In addition to the development of their knowledge of mathematics literature, the students will explore specialized topics that are not usually covered in a typical course on combinatorics and graph theory. This allows the students to grapple with difficult concepts outside of the textbook on their own (or with their group). Hopefully, this will show them that the knowledge they gain within the course is not confined to the classroom.