Syllabus Spring 2018
Functional Genomics and Proteomics (BSC 4443)

Instructor: Fernando Gabriel Noriega
Course web page: http://faculty.fiu.edu/~noriegaf/FG&FPNoriegaClass.htm
Lectures: Wed: 12.00-14.50. Class Room: Graham Center 271A
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Prerequisite: PCB3063
Course Objectives: The aim of this course is to introduce advanced undergraduates students to modern strategies to understand fundamental aspects of biology using functional genomics and functional proteomics.
Text: We do not have a textbook. **Review papers available in the website.**
Grading: Grades will be based on **mandatory attendance**, class participation, paper discussions and final exams.

Lecture and Activities Schedule

Date	Topic
1/10	1. Introduction to Proteomics I
1/17	2. Introduction to Proteomics II
1/24	3. Introduction to Genomics
1/31	4. Metagenomics
2/7	5. Metabolomics
2/14	6. Gene editing
2/21	7. MicroRNA
2/28	8. Graduate student presentations
3/7	9. Lipidomics
3/14	**Spring Break**
3/21	**10. Epigenetics (Prof Eirin-Lopez)**
3/28	11. Host-Parasite interactions.
4/4	12. Undergraduate students presentations
4/11	13. Undergraduate student presentations
4/28	14. The future of genomics and proteomics
4/25	15. **Final exam**

Some references:

1. Proteomic to study genes and genomes (2000). Nature 405: 837-846. Pandey and Mann
2. Functional Proteomics (2005Clin Chim Acta 357: 140-150.) Monti et al.
3. Advances in Proteomic Technologies (2002). Annu. Rev. Biomed. Eng. Yarmush and Jayaraman.

4. Mass spectrometry–based proteomics in cell biology (2010). J Cell Biol. Walther and Mann.
5. Genetics of global gene expression (2006). Nature reviews Genetics 7: 862-872. Rockman, M and Kruglyak L
6. Next-generation DNA sequencing techniques (2009). New Biotechnology 25, 4. Ansorge W.
7. A non-canonical landscape of the microRNA system (2014). Frontiers in Genetics. Cipolla
8. High throughout RNAi screening in vitro (2005). RNA 11: 985-993. Ovcharenko et al.
9. RNA interference (2002) Nature 418. Hannon G.
10. Transgenerational Epigenetic Inheritance: Myths and Mechanisms (2014). Cell. Heard and Martienssen.

We do not have a textbook. Recommended source (not required) are:
Principles of Proteomics. R.M Twyman (2004). (BIOS Scientific publishers).
Introduction to Genomics. A.M Lesk (2007) (Oxford University press)