

## PSL 438 *Topics in Cancer Biology*

### Section 001

#### Non-coding RNAs (MicroRNA and long non-coding RNA) and Cancer

Fall Semester 2015

Mondays, 3:00pm – 4:50pm

Room 3280 BPS Bldg.

2 credits (2 hrs/week)

**Instructor:** Dr. Chengfeng Yang  
**Office:** 4171 Biomedical Physical Sciences Building  
**Phone:** 884-5153  
**Email:** yangcf@msu.edu  
**Office Hours:** By appointment

**Course Goals:** This is a seminar course with four goals: (1) To learn the concept of “Non-coding RNAs” and appreciate their biological functions focusing on the important role of microRNAs in cancer; (2) To further develop your communication skills in speaking and writing; (3) To become more familiar with scientific literature in the field of biomedical research and gain proficiency using literature search tools to access reliable sources of information; and (4) To become more confident in discussing complex scientific information with your peers.

**Course Grading:** This course has no final examination. Grading will be based on class attendance, classroom participation, oral reports, and a typewritten term paper.

Points will be distributed as follows:

Class attendance and participation--**15 Points**

Oral Reports--**50 Points**

Term paper--**35 Points**

Grading Scale:

Grade	Points
4.0	≥90 points
3.5	80-89 points
3.0	70-79 points
2.5	60-69 points
2.0	50-59 points
1.5	40-49 points
1.0	30-39 points
0.0	<30 points

Students should turn in their term papers on time (due in Instructor’s office by 4:50pm, Monday, December 14, 2015). Term papers up to one week late will receive a maximum of **20** points.

Term paper more than one week late will receive no points.

**Course Prerequisite:** Completion of BMB 462 (Biochemistry II), or ZOL 341 (Fundamental Genetics) or permission from Dr. Chengfeng Yang. In addition, because this course will make extensive use of computers and the internet, both in and outside of class, access to a personal laptop computer throughout the semester is essential. A standard internet browser (Internet

Explorer, Firefox, Safari, etc.) and programs for word processing (e.g., Microsoft Word) and slide presentation (e.g., PowerPoint) are needed.

Materials: We will not be using a textbook. Assigned reading materials will be posted via D2L.

**Course Format:** This course consists of regular class lectures, team student oral reports, individual student oral reports, and writing a term paper.

1. For the first three weeks, the basics of scientific literature search and fundamental knowledge about cancer and non-coding RNAs will be delivered in a relaxed lecture format. MSU biology librarian and health sciences coordinator, Susan Kendall, will present the first lecture about the basics of scientific literature search (9/2).
2. Beginning on the 5<sup>th</sup> week (September 28), each class meeting will consist primarily of oral reports by students on papers assigned. Each oral report on assigned papers will be presented by a team of two students: one student will present the background information related to the assigned paper for about 10 minutes, and the other student will present the paper for about 25 to 30 minutes. Each oral report will be followed by class discussion of the presentation for about 5 to 10 minutes. In order to be able to actively take part in class discussion, **all students must read all assigned papers**. There will be two team oral reports in each class meeting. During the semester, two rounds of team student oral reports on assigned papers are scheduled. Students in the team will rotate for presenting background information or assigned papers.
3. After the first round of team oral reports on assigned papers, each student will be assigned one type of common cancers to do literature research for writing and presenting her/his term paper on MicroRNAs and xxx Cancer.
4. After the second round of team oral reports on assigned papers, students will start individual oral reports on their term papers: each student will present for about 25 minutes and three students will present at one class meeting. Each student oral report will be followed by class discussion for about 5 minutes.
5. Based on class discussion, students will revise and finalize their term papers. **The term paper is due in the instructor's office by 4:50pm, Monday, December 14, 2015.**

### **Course Schedules:**

**Week 1—9/2:** Lecture (by Susan Kendall)—How to search scientific literature using online and MSU library resources  
Course overview

**Week 2—9/7:** Labor Day—No class

**Week 3—9/14:** Lecture—Non-coding RNAs and Cancer (1)

**Week 4—9/21:** Lecture—Non-coding RNAs and Cancer (2)

**Week 5—9/28:** First Round of Team Student Oral Reports—Teams 1 and 2

**Week 6—10/5:** First Round of Team Student Oral Reports—Teams 3 and 4

**Week 7—10/12:** First Round of Team Student Oral Reports—Teams 5 and 6

**Week 8—10/19:** Second Round of Team Student Oral reports—Teams 1 and 2

**Week 9—10/26:** Second Round of Team Student Oral reports—Teams 3 and 4

**Week 10—11/2:** Second Round of Team Student Oral reports—Teams 5 and 6

**Week 11—11/9:** Individual Student Oral reports (1)

**Week 12—11/16:** Individual Student Oral reports (2)

**Week 13—11/23:** Individual Student Oral reports (3)

**Week 14—12/30:** Individual Student Oral reports (4)

**Week 15—12/7:** No class meeting—Term Paper is due in the instructor's office by 4:50pm

**Note:** All papers for student team presentations will be assigned in the 1<sup>st</sup> week of the semester.

**Absence policy:** Class attendance is mandatory. An excused absence requires a letter from a doctor stating that the student was not able to attend class. For a grief absence, please follow MSU grief absence policy as described in the following webpage:

<http://splife.studentlife.msu.edu/regulations/student-group-regulations-administrative-rulings-all-university-policies-and-selected-ordinances/grief-absence-policy>

If a scheduled oral report is missed because of an excused absence, students should discuss with the instructor to reschedule the oral report.

## **Appendix:**

### **I. Guidelines for Oral Reports:**

The presenter is expected to use appropriate diagrams and illustrations to educate the class. Try to make your presentation as interesting as possible. Remember you are the class expert in the material you are presenting and you know more than the rest of the class. Therefore, you have no reason to be nervous. Be prepared to answer questions at the end of your presentation. Grading for the oral reports will be based on two qualities: The first is the extent to which the student has understood his/her own presented material; and the second is on quality and clarity of presentation, completeness of coverage, and the student's ability to answer questions. It is strongly recommended that speakers see the instructor during office hours to help plan their reports!

### **II. Guidelines for the Written Report (Term paper):**

1. The topic of each term paper should be the same as the student's individual oral report.
2. The term paper should be 7-10 typewritten, double-spaced pages (excluding the references) using 1 inch margins and 12 point font.
3. The first page or two should be an introduction to the topic.
4. The middle 4-6 pages should focus on 3-4 experimental reports focusing directly on your specific topic.
5. Figures can be a welcome addition to guide the reader.
6. Unless there is an important exception, the papers cited should be from reputable journals from the 2005-2015 literature. For the most part, they should be original articles supported as needed by review articles.
7. The last page or so of the paper is very important; it should be a summary or synthesis that reflects your assessment of the area presented in a mature and thoughtful manner. Discuss any controversies and be sure to provide your own ideas for future directions and experiments. The summary must reflect the maturity of your thinking on this topic and will play a key role in the grade.
8. References should be listed at the end of your paper and numbered consecutively as they appear in the paper, using the following format:

For a journal article:

1. Sita-Lumsden A, Dart DA, Waxman J, Bevan CL. Circulating microRNAs as potential new biomarkers for prostate cancer. Br J Cancer. 2013; 108:1925-30.

For a book chapter:

1. Yuspa SH, Hennings H, Roop D, Strickland J, Greenhalgh DA. Genes and mechanisms involved in malignant conversion. In: Harris CC, Liotta LA, editors. Genetic mechanisms in carcinogenesis and tumor progression. New York: Wiley-Liss; 2013. p.115–26.

**Plagiarism: Copying paragraphs or sentences from your cited or non-cited references constitutes plagiarism! Rephrasing sentences and paragraphs does not represent a scholarly effort. All writing must be your synthesis of the material presented in your own words. Any significant form of plagiarism will result in an automatic failing grade since it constitutes scientific misconduct.**