Course Syllabus Spring 2015
PLB475: Advanced Cell Biology

INSTRUCTOR: Dr. Andrew Wood, LS II 431,
CONTACT: 453-5609, wood@plant.siu.edu
OFFICE HOURS: By appointment.
TEXT: Karp (2013) Cell and Molecular Biology 7th Ed. (suggested)

The course consists of six (6) reviews worth 50 points EACH (i.e. 300 points in total).

ALL Reviews have specific DUE DATES! Reviews will be submitted to the appropriate D2L dropbox. There is a two (2) day grace period for each assignment—after two days an assignment will still be accepted BUT 20% will be deducted from the grade. No reviews will be accepted after May 8th.

I. REVIEWS

Each student will review six (6) manuscripts from the primary literature. Please read the manuscripts listed below. The exact nature of the review will be provided later.

<table>
<thead>
<tr>
<th>REVIEW</th>
<th>Date To Be Completed By</th>
</tr>
</thead>
<tbody>
<tr>
<td>Review 1</td>
<td>February 4th</td>
</tr>
<tr>
<td>Review 2</td>
<td>February 25th</td>
</tr>
<tr>
<td>Review 3</td>
<td>March 18th</td>
</tr>
<tr>
<td>Review 4</td>
<td>April 1st</td>
</tr>
<tr>
<td>Review 5</td>
<td>April 17th</td>
</tr>
<tr>
<td>Review 6</td>
<td>May 4th</td>
</tr>
</tbody>
</table>


Review 6: Carvajal LA & Manfredi JJ (2013) Another fork in the road-life or death decisions by the tumour suppressor p53 EMBO Reports 14: 414-421 DOI: 10.1038/embor.2013.25
A. How to Prepare the REVIEW on the article “Twenty Years of p53 Research”.

1. Read the scientific article. Make notes summarizing key ideas and noting critical portions of the text.
2. The review should be 4-5 pages, single-spaced or 1.5 spaces using a standard 12-point font (such as Times New Roman).
3. Please include NO MORE THAN 1 FIGURE.
4. Please address the following points in your review:
   a. In 300-500 describe and define what is ‘p53’. What is an “ONCOGENE”? What is a “TUMOR SUPPRESSOR GENE”? What is a “SPECIFIC TRANSACTIVATOR”? 
   b. Use FIGURE 2 as the CENTRAL FOCUS of your review. Describe the role of p53 in the “response to ionizing radiation”.

B. How to Prepare the REVIEW on the article “Blinded by the Light”.

1. Read the scientific article. Make notes summarizing key ideas and noting critical portions of the text.
2. The review should be 4-5 pages, single-spaced or 1.5 spaces using a standard 12-point font (such as Times New Roman).
3. Please include NO MORE THAN 1 FIGURE.
4. In preparing this review, COMPARE THE INFORMATION to that found in “review article one” published 10+ years ago.
5. Please address the following points in your review:
   a. In 300-500 describe and define what is ‘p53’. Summarize the key facts about the protein (size, activity, location) and succinctly describe its’ role within the cell.
   b. Use FIGURE 1 as the CENTRAL FOCUS of your review. Describe the role of p53 in mediating tumor suppression.
   c. Discuss in detail the final section of the manuscript “Therapeutic Applications of p53”.

C. How to Prepare the REVIEW of the article “Modes of p53 Regulation”.

1. Read the scientific article. Make notes summarizing key ideas and noting critical portions of the text.
2. The review should be 4-5 pages, single-spaced or 1.5 spaces using a standard 12-point font (such as Times New Roman).
3. In this review, please INCLUDE Figures 2 AND 4 to guide your review.
4. Please address the following points in your review:
   a. Use the “Introduction” to provide a summary of WHY p53 is important, AND describe some of the interesting questions related to p53 activity & function.
   b. Summarize the “Classical Model” of p53 ACTIVATION presented on pages 612-613 (text related to FIGURE 2).
   c. Provide a very brief definition (i.e. 2-3 sentences AT MOST) of the following terms: ACETYLATION, UBIQUITINATION, METHYLATION, SUMOYLATION & NEDDYLATION.
   d. Summarize the “Refined Model” of p53 ACTIVATION presented on pages 616-618 (text related to FIGURE 4).
D. How to Prepare the REVIEW of the article “The p53 Orchestra….”
1. Read the scientific article. Make notes summarizing key ideas and noting critical portions of the text.
2. The review should be 4-5 pages, single-spaced or 1.5 spaces using a standard 12-point font (such as Times New Roman).
3. As before, please include NO MORE THAN 1 FIGURE.
4. Please address the following points in your review:
   a. In 300-500 describe the process of UBIQUITINATION. What is E1, E2 & E3? What is the role of Mdm2 and/or Mdmx in the process?
   b. What is the role that Mdm2 and Mdmx play in p53 stability? Be as detailed as you can.
   c. Discuss, briefly, the multiple cell signaling cascades that converge on Mdm2 and Mdmx (Figure 4).

E. How to Prepare the REVIEW of the article “Mutant p53: One name, many proteins”
1. Read the scientific article. Make notes summarizing key ideas and noting critical portions of the text.
2. The review should be 4-5 pages, single-spaced or 1.5 spaces using a standard 12-point font (such as Times New Roman).
3. As before, please include no more than one figure. FOR THIS REVIEW IT WILL BE FIGURE 2.
4. Please address the following points in your review:
   a. In 300-500 describe the “Gain of Function Hypothesis”. Include and discuss the hypothesis in light of Figure 2 (which you should include in your review).
   b. Use FIGURE 2 as the CENTRAL FOCUS of you review.
   c. From Table 2, select one (1) CATEGORY of transcriptionally activated genes (such as “increased proliferation”) and in 300-500 words discuss how p53 might regulate your selected ‘cellular phenotype’.
   d. Include a short description of the final section “p52 and therapeutic approaches”.

F. How to Prepare the REVIEW of the article “Another Fork in the Road”
1. Read the scientific article. Make notes summarizing key ideas and noting critical portions of the text.
2. The review should be 4-5 pages, single-spaced or 1.5 spaces using a standard 12-point font (such as Times New Roman).
3. As before, please include no more than one figure. FOR THIS REVIEW IT WILL BE FIGURE 2.
4. Please address the following points in your review:
   a. In 300-500 describe how “DNA-binding of p53 can target gene selectivity”. Use FIGURE 2 as the CENTRAL FOCUS of you review.
   b. In 300-500 describe how “PTM can regulate promoter selectivity”.
5. SELECT and DISCUSS one (1) of the “In need of answers” from “Sidebar A” that you think is the most interesting.
6. In 500 words SUMMARIZE your thoughts on p53.