**Final Exam Guidelines**

Due on or before 10 AM, Tuesday, May 8, 2007. Send via campus mail to

Ivan Rusyn
0031 MHRC
CB#7431

or e-mail as an attachment to iir@unc.edu

Original research papers for the final exam (available in PDF format on the course website):

TOXICOLOGICAL SCIENCES 95(2), 495–510 (2007)
**Effects of Brief Cutaneous JP-8 Jet Fuel Exposures on Time Course of Gene Expression in the Epidermis**
James N. McDouga, Carol M. Garrett, Carol M. Amato, and Steven J. Berberich

Environ Health Perspect 114:1542–1546 (2006)
**Organophosphate Insecticides Target the Serotonergic System in Developing Rat Brain Regions: Disparate Effects of Diazinon and Parathion at Doses Spanning the Threshold for Cholinesterase Inhibition**
Theodore A. Slotkin, Charlotte A. Tate, Ian T. Ryde, Edward D. Levin, and Frederic J. Seidler

Toxicologic Pathology, 34:776–784, 2006
**Characterization of ANIT-Induced Toxicity using Precision-Cut Rat and Dog Liver Slices Cultured in a Dynamic Organ Roller System**
K. AMIN, C. IP, B. SATO, T. LE, C. E. GREEN, C. A. TYSON, AND H. P. BEHRSING

Free Radical Biology & Medicine 42 (2007) 228–235
**Increased hepatic telomerase activity in a rat model of iron overload: A role for altered thiol redox state?**
Kyle E. Brown, M. Meleah Mathahs, Kimberly A. Broadhurst, Mitchell C. Coleman, Lisa A. Ridnour, Warren N. Schmidt, Douglas R. Spitz

For the final exam you are asked to select **ONE** published manuscript from 4 listed above, carefully read the paper, and prepare a 3-4 page (double-spaced) review/critique of this study using the guidelines provided below. The use of textbooks, lecture notes and other appropriate material is encouraged. Feel free to engage in discussion with your peers/advisors. However, this is not a collective work! Each student **must** submit an independent answer. The maximum score for this exam is 105 points, or 35% of the total course grade. Each review will be graded by two faculty teaching in the course and the average grade will be used to calculate the final course grade.

**Guidelines for preparation of the final exam:**

I suggest the following strategy: read the paper once, or several times to understand the general concept(s), study design, results and conclusions. Go to **PubMed**
http://www.ncbi.nlm.nih.gov/entrez/query.fcgi
and search by keywords going back 3-5 years. Review the abstracts (or if necessary the full-text versions) of papers that are related to the topic of your selected publication. Try to understand what others have done in this area, what prior knowledge led the authors to this particular study, and how does this study move the field forward. It might be also helpful to review recent (last 3-5 years) papers by this group of authors to understand how they came to a particular research question that was addressed in this manuscript.

Please use the sample questions that one might ask him(her)self while reading a(ny) research paper that are provided below. The list below is not inclusive and feel free to add to it as you see other issues that get your attention. Do not simply try to answer each and every question. The format of your answers should read as a cohesive essay. It is expected that your essay will contain at least three paragraphs (sections) that address each of the following:

1. Summary of the paper (5-7 sentences that capture the highlights of this study).

2. General comments/critique:
What is the knowledge base for this study?
What was the hypothesis of this study?
Does this paper address a novel question and/or uses novel experimental approach?
What was the experimental approach?
Is the paper clear and well organized?
Is the study focused?
Is the experimental model appropriate to address the hypothesis?
Is the experimental design sound?
Does this paper contain new findings/ideas?
Are conclusions supported by the data?
How this paper advances our existing knowledge (i.e., why is it important)?
How does this study compare with other papers that you have read?
Is this manuscript appropriate for this journal?

3. Comments/critique to specific sections of the manuscript:
*Abstract:*
Is it concise and clear? Is information provided sufficient to provide general understanding of the work?

*Introduction:*
Is it concise and clear?
Does it contain enough background information for a reader who is not an expert in this line of research?
Are references useful and contain additional more extensive information?

After reading the Introduction do you feel ready to understand what are the critical gaps in our knowledge that this study will address?

*Methods:*
Contains sufficient experimental detail? Would you be able to repeat the experiments in your own lab by following described experimental procedures?

*Results:*
Clarity of presentation?
Are Figures easy to understand?
Figure legends provide necessary details to understand what is shown and what the experiment was?
Are there inconsistencies in data presentation?
Is data repetitive?
Is some of the "data not shown" essential for understanding the study and should have been shown?
Is there an assay/endpoint that you wish have been looked at in this study?

*Discussion:*
Does it repeat the results?
Are conclusions supported by the actual data?
Does it address the importance of this study for the advancement of science in this area?
Did authors think of yet unanswered questions/ future directions?

*References:*
Too many/too few?
Are references appropriate/helpful?
Are there any additional key papers that you feel should have been included?
Do the authors cite their own work too often (is there an obvious bias presented)?