Chem 184/284  
Chemical Literature  

MID-TERM EXAM II  

Due Date: Tuesday, March 1, 2011  

Read the instructions for each question CAREFULLY before you begin. Please work on this exam on your own. You need the experience!  

Student’s Name:__________________________________________________  

1.) The first group of questions requires you to research a specific author. You have each been assigned the noted chemist, biochemist, chemical engineer or materials scientist from the list below.  

Using the indexes, databases and catalogs that we have covered in class find one of each of the following by your faculty member. SciFinder will be your primary tool, but perhaps not the only one. When the question asks for a reference, photocopy or print out BOTH:  

A. The bibliographic record for the item from the database, catalog, etc.  
B. The first page of the document itself.  

and attach them to your completed mid-term. Note: if your author has a common name, you may need to refine by institution to make sure you have the right person. Be aware of variant forms of the name!  

Anvick, Keith – Carlos G. Levi, UCSB materials/mechanical engineering  
Berry, Ryan – Bradley F. Chmelka, UCSB chemical engineering  
Catledge, Aaron – Guillermo C. Bazan, UCSB, chemistry/materials  
Chapovetsky, Alon – Michael T. Bowers, UCSB chemistry  
Frausto, Selene – Peter C. Ford, UCSB chemistry  
Halliwell, James – Craig Hawker, UCSB chemistry/materials  
Kahn, Dean – Kalju Kahn, UCSB biochemistry  
Kleckner, Kathryn – Walter Kohn, UCSB physics/chemistry  
Manriquez, Robert – Horia Metiu, UCSB chemistry  
Modarressi, Sherwin – Martin Moskovits, UCSB chemistry  
Ngo, Jamie – Stanley M. Parsons, UCSB biochemistry  
Nguyen, Andrew – Eric McFarland, UCSB chemical engineering  
Nguyen, Nancy – John J. Perona, UCSB biochemistry  
Ortiz, Aurora – Thomas R. Pettus, UCSB chemistry  
Sabin, Jeanne – Norbert O. Reich, UCSB biochemistry  
Salas, Bianca – Susannah Scott, UCSB chemistry/chemical engineering  
Szabo, Istvan – Thomas C. Bruice, UCSB chemistry  
Troy, Jim – Theo Theofanous, UCSB chemical engineering  
Wu, Henry – Fred Wudl, UCSB chemistry/materials  
Zhou, Jun Yi – Liming Zhang, UCSB chemistry  

Note: some of these will be more challenging than others. Be creative! Make sure you review ALL the sources covered in the lecture notes to help figure out which ones will work best for finding what you need.
Researcher chosen: _______________________________________________________

1a. When you looked up the researcher in SciFinder by Author Name, what **forms** of the name did you select?

1b. A journal article from 2003 or later in the electronic version of a journal. Remember to attach both the bibliographic record from the database, and the first page of the article. **If there is supporting or supplementary material for the article, print out the first page of that as well.**

1c. Looking at the journal article above and/or its record in SciFinder, list six different specific pieces of information from them that you could use to find more documents on similar topics **and tell me what their significance is.** Note: Do not just put “other authors”, give me the specific name(s) and how you’d use them. Be similarly specific for other types of information. **Do not use the same type of information more than once.**

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1d. A conference paper (any year). Provide just the bibliographic record for this one, as most conference papers will be very hard to find in print.. If none exists, say “None.” (Remember, I will check these!)

1e. A patent (if you can't find one by your chosen researcher, any UCSB chemistry faculty member will do.) Provide both the bibliographic record and the first page of the patent.
1f. Looking at the patent above and/or its record in SciFinder, list six specific pieces of information from them that you could use to find more documents on similar topics and tell me what their significance is. **Do not use the same type of information more than once:**

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<thead>
<tr>
<th>Information Type</th>
<th>Description</th>
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1g. Your researcher’s dissertation OR a dissertation with your researcher as advisor. For the first page, use the first page with the abstract of the dissertation. (You’ll need to use ProQuest Dissertations & Theses for this part.) If you can’t find one there or in Pegasus, omit the first page requirement. If you can’t find any listed, just say NONE. (But note, I will check all these…)

1h. Using SciFinder, list the three most frequent co-authors for your faculty member.

1i. Similarly, what are the three most common CA Index Terms (subject headings) applied to the faculty member's papers?

1j. What are the three journals the researcher most commonly publishes in? Who publishes them? Are they available on the Web at UCSB? In print? If so, what’s the call number?

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<th>Journal Name</th>
<th>Publisher</th>
<th>Available Web/Print?</th>
<th>Call Number</th>
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1k. In what three years (1907-present) did he/she publish the most papers?

1L. Using SciFinder, find the papers which cite papers by your author. What author (other than the author him/herself) cites your author most frequently?

2. Go to the Article Databases page on UCSB Library website, locate and examine the database ArticleFirst and answer the following:

2a. Scope: __________________________________________________________ (i.e., subjects and type of documents covered.)

2b. About how many document records are in the database? _______________________

2c. Years covered __________________________

2d. Time lag in indexing __________________________

   (i.e., approximate difference between current date and publication date of most recent articles indexed.)

2e. Access points ______________________________________________________________

   (i.e., what indexes can you search, be sure to look at the Help and Advanced Search)

2f. Truncation symbols (if any) ______________________________________________

2g. What kind of proximity searching (if any)?____________________________________

2h. What kind of personalization features are there (if any)? ________________________

3. For each of the substances below, find the Chemical Abstracts Service Registry Number AND systematic name, that is, the name under which the substance is listed in the current Chemical Substance indexes for CA, AND the molecular formula in Hill order. Of course you can find them all in SciFinder. So, also list one reference work (NOT SciFinder, Reaxys or any other article index!! AND NOT Wikipedia!) where you can find the Registry Number for that substance.

3a. the essential amino acid, **tryptophan**

3b. environmental contaminant, **dimethylmercury**
3c. the herbicide, \textbf{2,4-D}

3d. the adhesive polymer, \textit{polyvinyl alcohol}

3e. the cholesterol-controlling drug, \textit{simvastatin}

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4. Imagine that you are searching for information on a specific property of a particular substance in both Reaxys and SciFinder. You find Reference A in Reaxys but not in SciFinder, and Reference B in SciFinder, but not in Reaxys. Considering the criteria of scope, comprehensiveness, chronological range and access points…

4a. Give four possible specific reasons why you might have found Reference A in Reaxys but not in SciFinder:

4b. Give four possible specific reasons why you might have found Reference B in SciFinder but not in Reaxys:

5. Consider the molecule that makes hot peppers hot, \textit{capsaicin}:

5a. What is the CAS Registry number for capsaicin?
5b What predicted properties does the SciFinder Registry record list for capsaicin (names of properties, not values)? What experimental properties?

5c. Find the earliest paper on capsaicin in the CAPLUS database in SciFinder. Give the reference here. Is the paper available in electronic form? If so, attach a copy of the first page of the article. (WARNING: CAS Full Text Options/UC e-Links are not infallible! Doublecheck!)

5d. Find a paper in which capsaicin is used as a reactant. Give the reference here, and the CAS Registry Number of the product of the reaction in question.

5e. Do a similarity search on the structure of capsaicin. Using the compounds you find with a 95-98% similarity, look for references which describe biological studies of the substance(s). Now, from those references find a patent on the use of it/them in carbonated beverages. Give the reference for the patent here, and the Registry Number(s) of the “hit” substance(s) from the patent.

5f. Searching for capsaicin (if you don’t find it by name, try other ways to search it) in Reaxys, what types of data are available for this compound in that database?
6a. Using SciFinder, draw the following structure (ruthenium, with three bipyridyl ligands attached, one of which has at least one halogen attached to the pyridyl ring at any open position):

Do a substructure search on this structure. Get the references for the resulting set of compounds, and find a paper describing the use of one of them in dye-sensitized solar cells. Print out the full reference for the paper, including the structure diagram for the “hit” compound, and attach it to your exam.

6b. In Reaxys, look up the compounds with molecular formula C30H24N6Ru. Copy the structure to query, then modify it by attaching an X (halogen) group in the para position to one of the nitrogens. Do a substructure search on the modified structure. From that answer set, refine to the answers for which IR spectra data is available. Pick one of the correct substances, and print the record for the substance and attach it to the exam.