A GUIDE FOR GRADUATE STUDENT PREPARATION FOR CHEMISTRY ORIENTATION EXAMINATIONS AT THE UNIVERSITY OF CALIFORNIA, RIVERSIDE

These examinations along with previous course work experience are used to aid in placing you in the correct course program. We recommend that you prepare for these examinations so that course placement is based on your best level of performance and so that you can progress as rapidly as possible in your graduate studies. A satisfactory performance on each of the examinations or course work is required before a student may advance to candidacy for the M.S. or Ph.D. degree.

ANALYTICAL CHEMISTRY: The minimum level of achievement in this examination should be that of a student who has completed a one-quarter course in instrumental method analysis. It is also desirable that the student be adept in the stoichiometric and equilibrium calculations of quantitative analysis.

Among the textbooks which cover the material in the Analytical Chemistry examination are:
Skoog and Nieman, **Principles of Instrumental Analysis**, (5th Ed.), Saunders College/Holt, Rinehart and Winston.
Strobel and Heineman, **Chemical Instrumentation: A Systematic Approach**, (3rd Ed.), Wiley.
Willard, Merritt, Dean and Settle, **Instrumental Methods of Analysis**, (7th Ed.), Wadsworth.
Harris, **Quantitative Chemical Analysis**, (4th Ed.), Freeman.

INORGANIC CHEMISTRY: The minimum level of achievement in this examination should be equivalent to that of a student who has had two quarters of upper-division Inorganic Chemistry. Performance above this minimum level will also be tested in order to give the staff a better picture of the student's background in this area. Both theoretical and descriptive material will be included.

Texts which give an appropriate level of treatment of the subject matter include:
Shriver, Atkins, **Inorganic Chemistry**, Freeman, (4th Ed.), 2006.
Miessler, Tarr, **Inorganic Chemistry**, Prentice-Hall, (3rd Ed.), 2004.
Cotton, Wilkinson, Murillo, Bochman, **Advanced Inorganic Chemistry**, Wiley-Interscience, (6th Ed.), 1999.
Huheey, Keiter and Keiter, **Inorganic Chemistry**, Harper Collins, (4th Ed.), 1993.
Wulfsberg, **Inorganic Chemistry**, University Science Books, February, 2000.

ORGANIC CHEMISTRY: The minimum level of achievement in Organic Chemistry expected of an entering graduate student is reasonable proficiency in the material contained in a one-year undergraduate course (with laboratory) similar to the one offered at UCR.

While any modern elementary Organic text intended for a one-year course is suitable for study in preparation for the orientation examination, the following texts are currently used at UCR (effective Fall, 2001):

Text: J. McMurry, **Organic Chemistry**, (5th Ed.), Brooks/Cole.
We have also used K.P.C. Volhardt and N.E. Schore, **Organic Chemistry**, (2nd Ed.), W.H. Freeman and Co. New York, 1994 and T.W.G. Solomons, **Organic Chemistry**, (4th Ed.), Wiley.
Laboratory Manual: D.W. Mayo, R.M. Pike, P.K. Trumper, **Microscale Organic Laboratory**, (3rd and 4th Ed.), John Wiley, New York, (Special U.C. Riverside Edition).

We have also recently used: D.W. Mayo, R.M. Pike and P.K. Trumper, **Microscale Organic Laboratory**, (3rd Ed.), John Wiley, New York, 1994, Pavia, Lampman, Kriz and Engel, **Organic Laboratory Techniques**, Saunders College Publishing, (1st Ed.), 1990, and L.F. Fieser and K.L. Williamson, **Organic Experiments**, (6th Ed.), Heath.

PHYSICAL CHEMISTRY: The minimum level of achievement on this examination should be that of a student who has finished one year of undergraduate Physical Chemistry and a Physical Chemistry laboratory course. Any text which covers thermodynamics, chemical kinetics, quantum mechanics, and basic statistical mechanics should be adequate for preparation for the examination. Examples of such texts include the following:

I.N. Levine, **Physical Chemistry**, McGraw Hill.
W.J. Moore, **Physical Chemistry**, Prentice-Hall.
P.W. Atkins, **Physical Chemistry**, W.H. Freeman & Co.
R.S. Berry, S.A. Rice and J. Ross, **Physical Chemistry**, John Wiley & Sons.
G.W. Castellan, **Physical Chemistry**.
D.P. Shoemaker, C.S. Garland, J.L. Steinfield and J.W. Nibler, **Experiments in Physical Chemistry**, McGraw Hill, Inc.