

Postdoctoral Training Certificate in Chemistry Requirements Check List

This form is for your **personal use only** to help track your requirements.

- Chemistry Coursework**
(Any 2 of the following courses)
 - Advanced NMR Spectroscopy/Magnetic Resonance Spectroscopy
 - Advanced Synthesis & Catalysis
 - Chemical Neurotransmission
 - Chemical Structure and Reactivity I
 - Chemical Structure and Reactivity II
 - Chemical Synthesis I
 - Chemical Synthesis II
 - Molecular Biophysics: Spectroscopy
 - Protein Structure and Folding
 - X-ray Crystallography
- Public Speaking (Journal Club/Works-in-Progress)**
- Seminar Series**
- Individual Development Plan**

I have _____ terms remaining out of the 6 terms per certificate in which to meet these requirements.

[View Your UT Southwestern Academic Record On-line](#) to verify which courses you have completed.

If you have been registered in courses at UT Southwestern, you can review your academic record (called Student Profile) by establishing your special Student and Alumni Affairs user name and password. Select 'Don't know your username or password?' at this site:

http://swstuaff1.swmed.edu/dm/scripts/sis_stuprof1.asp

If you have not previously registered for courses at UT Southwestern you must wait until you have completed registration to establish a user name and password.

Note: the term abbreviations (and number of credit hours for which you must register):

F = fall (3 credit hours)

S = spring (3 credit hours)

M = summer (2 credit hours)

See course offerings for this term on following pages.

Postdoctoral Certificate Program in Chemistry
Fall Term 2009 Course Offerings and Schedule

Please register and complete your required courses before considering optional electives.

Supervised Research

PDRT 5186-01 1.0 Credit Hour
PDRT 5299-01 2.0 Credit Hour

PDRT 5199-01 1.5 Credit Hour
PDRT 5399-01 3.0 Credit Hour

Supervised Research consists of the training you receive daily from your mentor and others in the laboratory every day and, as such, **requires no class attendance**. Therefore there is no "class" schedule. This course is available for 1.0, 1.5, 2.0 or 3.0 credit hours.

REQUIRED COURSES**Journal Club/Works-in-Progress**

PDRT 5097-01 1.0 Credit Hour

**Note: Verification of the journal club or WIP that you attend is required for a grade of pass in this course.*

This **required course** develops scientific analysis and public speaking skills through participation in a Journal Club or Works-in-Progress. Journal Club is comprised of presentations and analysis of research publications, whereas a WIP is a presentation of the scholar's current research project. To meet this requirement, a postdoc must make at least one presentation in the year registered. Any existing departmental (multi-lab) journal club/WIP may meet this requirement with approval of the Postdoctoral Affairs Office. **You must obtain permission from the organizer to participate.** Credit for this course can be given for a term of regular participation within the last year. Once your certificate requirement is met, this course may be repeated as an elective.

Seminar Series

PDRT 5108-01 1.0 Credit Hour

**Note: Verification of the seminar series that you attend is required for a grade of pass in this course.*

Attend a regularly scheduled institutional, departmental, or program seminar series. Choose from the list available on the webpage entitled [Web Resources for UT Southwestern Postdoctoral Scholars](#) or, for a seminar series not found on the list, obtain approval from the Postdoctoral Affairs Office. Credit can be given for a term of regular attendance within the last year.

Individual Development Plan

PDRT 5117-01 1.0 Credit Hour

This course is comprised of writing your own Individual Development Plan DURING THE TERM OF REGISTRATION and discussing it with your mentor. To receive a grade of pass, you must inform the [Postdoctoral Affairs Office](#) that the plan has been completed. There is no class to attend. To write your plan, follow the guidelines posted: http://www.utsouthwestern.edu/vgn/images/portal/cit_56417/1/8/478544IDP_Description.pdf

Each of the following courses fulfills ONE of the TWO required Chemistry Courses needed for completion of this certificate.

Advanced NMR Spectroscopy

PDRT 5184-01 1.5 Credit Hour

Lecture: T,Th 2:00 PM – 4:00 PM Location: ND8.218

Rizo-Rey, J

First Course Date: October 19, 2009

Principles of nuclear magnetic resonance (NMR), emphasizing its application to macromolecular structure determination. Topics include multidimensional NMR spectroscopy, including COSY, TOCSY and NOESY experiments, sequential assignments and structural analysis, practical methods and new developments in the field.

Chemical Neurotransmission

PDRT 5106-01 1.5 Credit Hour

Lecture: T, Th 9:00 AM- 10:30 AM Location: NA4.218

Kavalali, E

First Course Date: October 14, 2009

Neurons communicate with one another primarily by chemical neurotransmission at synapses. This course deals with the structural and molecular basis of neurotransmitter release and the transfer of the neurotransmitter signal to the post synaptic cell. Topics encompass all aspects of synaptic transmission, including synaptic structure, intracellular signaling, Ca²⁺ homeostasis and the mechanism of exocytosis.

Chemical Structure and Reactivity I

Lecture: T, Th 9:00 AM – 10:30 AM

Location: L4.146

PDRT 5179-01

Chen, C

1.5 Credit Hour**First Course Date – August 25, 2009**

This course serves to provide a solid basis for understanding the physical properties and chemical reactivity of biologically active molecules. The concepts conveyed will both prepare students interested in small molecules for more advanced studies in organic synthesis and also lay out quantification principles of interest to biochemists who wish to study macromolecules in a quantitative and rigorous fashion. Topics to be covered include: 1) the chemistry of major functional groups present in biomolecules, particularly proteins and nucleic acids, 2) fundamentals of chemical kinetics including the rate law, transition state theory, etc.; 3) theory and practice of studying equilibrium interactions between molecules; 4) stereochemistry; and 5) dynamic properties of molecules.

Chemical Structure and Reactivity II

Lecture: T, Th 9:00 AM – 10:30 AM

Location: L4.146

PDRT 5159-01

Chen, C

1.5 Credit Hour**First Course Date – October 20, 2009**

This course moves into advanced discussions of reaction mechanisms. We will focus on chemical catalysis, sigmatropic rearrangements, the conservation of orbital symmetry, and the concept of aromaticity. The last topic will be supplemented with a discussion of the role aromaticity in reactivity and its involvement in stacking (dispersive) interactions. The course will conclude with several lectures exploring the nature and origin or forces underpinning specific molecular recognition in aqueous environments.

Chemical Synthesis I

Lecture: M, W 9:00 AM – 10:30 AM

Location: L4.146

PDRT 5177-01

DeBrabander, J

1.5 Credit Hour**First Course Date – August 24, 2009**

The first part of the course will introduce the major classes of synthetic transformations with a heavy emphasis on methods and reaction mechanisms. Control of reaction regio- and chemoselectivity in the assembly of carbon-carbon, carbon-heteroatom, and heteroatom-heteroatom bonds will be discussed. Multiple tactics for acyclic diastereoselection will be covered during discussions of the Aldol and Claisen condensations. Olefin synthesis, principles of transition-metal catalysis, and the major types of carbon-based cycloadditions will conclude the first eight-week session.

Chemical Synthesis II

Lecture: M, W 9:00 AM – 10:30 AM

Location: L4.146

PDRT 5178-01

DeBrabander, J

1.5 Credit Hour**First Course Date – October 19, 2009**

The second part of the course will move into more of an architectural mode. Concepts and strategies for assembling complex organic structures from simpler components will be tackled. This will include discussions of orthogonal protection, template- or reagent-based diastereoselection, and the compatibility of functional groups. Methods for chiral synthesis, including communicated and induced asymmetry, will open the floor to several case studies that highlight state-of-the-art methodology and achievements in the field.

Molecular Biophysics: Spectroscopy

Lecture: T, F 1:00 PM- 2:30 PM

Location: ND10.606

PDRT5109-01

Ross, E

1.5 Credit Hour**First Course Date: October 20, 2009**

This course covers optical spectroscopy. Emphasis is on applications in biomedical research. Topics include interaction of light and matter, absorption spectroscopies (UV/vis and infrared), fluorescence, and circular dichroism.

ELECTIVES

Elective courses are offered to enhance your training experience, but are not required. Register for these courses only if you have completed required courses, you have discussed this with your mentor AND your schedule allows for full participation

Advanced Topics – Off Campus**PDRT 5100-01****1.0 Credit Hour**

**Note: Advance permission and subsequent verification of your off-campus academic activity will be required before you may register and receive credit in this course.*

Participate in a workshop, conference or other activity in advanced topics offered off campus. Advance permission is required from your research supervisor. Costs associated with such activities are **not** provided by the graduate school. To receive a grade of pass, a form shall be submitted to the [Postdoctoral Affairs Office](#) to document participation, including a trip number if the off campus activity is more than 6 hours or requires travel.

Application for Funding Award

PDRT 5200-01

2.0 Credit Hour

**Note: Advance permission and verification that you have previously submitted an application for funding will be required before you may register and receive credit in this course.*

To gain permission to register for this course, you must submit a form to the [Postdoctoral Affairs Office](#) verifying submission of your application. There are no lectures to attend for you to receive a grade of pass. Credit can be given for submission within the last year.

Effective Teaching Practices

PDRT 5118-01

1.0 credit hour

The objective of this on-line course is to provide insights on how to develop and improve teaching skills. This course meets the requirement in effective teaching skills for the advanced [Postdoctoral Certificate in Educational Techniques](#) and serves as an elective for all other postdoctoral certificate programs. To receive credit, registrants must view seven video recordings and complete the evaluation form for each recording. Video recordings include those listed under Teaching Skills on the intranet page titled [Video Recordings Provided by the Graduate School](#) and maybe viewed at any time without registering for this course.

Poster Presentation

PDRT 5104-01

1.0 Credit Hour

**Note: Verification of your poster presentation will be required for credit in this course.*

Produce a poster to describe a research project and exhibit data. Make a presentation at a local (e.g.: UT Southwestern Annual Postdoctoral Poster Session), regional, national or international conference or symposium. Alternatively, you may receive credit for giving an oral presentation at an off-campus conference or symposium. A form shall be submitted to the [Postdoctoral Affairs Office](#) to document the presentation, including a trip number if the poster or oral presentation is made off campus. Credit for this course can be given for experience within the last year.

Research Mentoring

PDRT 5101-01

1.0 Credit Hour

**Note: Advance permission and subsequent verification of your research mentoring will be required before you may register and receive credit in this course.*

Serve as a supervisor/mentor for a research project conducted by a trainee such as a rotating graduate student, medical student, [Green Fellow](#), [SURF](#) student, or [STARS](#) student or teacher. The name of the trainee and program must be submitted to the [Postdoctoral Affairs Office](#) and the appropriate program. This activity must also be coordinated with your own research supervisor. To receive a grade of pass, a form shall be submitted to the Postdoctoral Affairs Office to document your mentoring activity. Credit for this course can be given for experience within the last year.

Statistics 2.0

PDRT 5202-01

2.0 Credit Hour

This on-line, elective course is an introduction to probability and basic descriptive and inferential statistics, with biological applications. To receive credit for this demanding, self-paced course you must view video recordings of ten lectures of your choice (from a total of 14 that ranging in length from 61 to 83 minutes each) and complete an evaluation form for each recording viewed, all within the term registered. To learn the material you should work problem sets on your own. Please note that you need not register for this course to view any or all recordings, which are available on the intranet: <http://www.utsouthwestern.edu:8080/utsw/cda/dept436201/files/493318.html>

Statistics 3.0

PDRT 5307-01

3.0 Credit Hour

This on-line, elective course is an introduction to probability and basic descriptive and inferential statistics, with biological applications. To receive credit for this demanding, self-paced course you must view video recordings of all 14 lectures (ranging in length from 61 to 83 minutes each) and complete an evaluation form for each recording, all within the term registered. To learn the material you should work problem sets on your own. An alternative course, which requires viewing of only ten recordings, is offered as course number PDRT 5202-01. Please note that you need not register for this course to view any or all recordings, which are available on the intranet: <http://www.utsouthwestern.edu:8080/utsw/cda/dept436201/files/493318.html>

Teaching Experience

PDRT 5102-01

1.0 Credit Hour

**Note: Advance permission and subsequent verification of your teaching experience will be required before you may register and receive credit in this course.*

You make arrangements to prepare and present a class lecture or lead a discussion group under the supervision of a faculty member with whom you make arrangements to evaluate you. A faculty member may stipulate completion of the requirement in effective teaching practices as a prerequisite. If you need assistance, you may contact the [Postdoctoral Affairs Office](#) for teaching opportunities before registering in this course. Credit for this course can be given for experience within the last year.