

## **GEOL 420/620 Lecture& Lab course, Spring2016**

### **Introduction to X-Ray Diffraction and X-Ray Spectrometry Methods**

**Location:** WRI C233 **Wednesdays, 2:30-3:45 and 4pm -5:15pm**

**Instructor:** Dr. Oliver Tschauner, **email:** olivert@physics.unlv.edu

**Office:** SEB 3118A; **Office Hours:** by appointment; **Phone:** 5-1487

**Text/Required Readings:** None

**Learning Outcomes/ Course Objectives:** Introduction to the principles and methods of x-ray analysis as applied to the study of minerals. Powder camera, diffractometry and spectrometry methods covered. Two hours lecture and six hours laboratory. This course is crosslisted with GEOL 620. Credit at the 600-level requires additional work. 4 credits. The purpose of this course is to train students in basic concepts of X-ray diffraction and spectrometric methods. At the end the students will be able to use diffraction data for identifying crystalline phases, evaluate their phase proportion, and refine simple structures. The students will also know which X-ray spectroscopic methods are available and how they are used for understanding properties such as valence and local coordination of ions. Basic concepts of structure description and symmetries of crystals are discussed also. The students are required to submit written homework assignments and pass a final examen which includes a lab section.

Grades will be based 50% on the homework evaluations and 50% on the final examen.

**Assessment:** Grades will be based 50% on the homework evaluations and 50% on the final examen.

Grades: A: = 100-90 %; B: 89-80%; C: 79-70%; D: 69-60%, F: <60% I assign +/- grades for scores that are 2.5 points above or below the break between each letter grade.

**Attendance Policy:** Absence from 3 or more of the regular classes will result in an automatic grade of "F" for the class.

**Academic Misconduct:** Academic integrity is a legitimate concern for every member of the campus community; all share in upholding the fundamental values of honesty, trust, respect, fairness, responsibility and professionalism. By choosing to join the UNLV community, students accept the expectations of the Academic Misconduct Policy and are encouraged when faced with choices to always take the ethical path. Students enrolling in UNLV assume the obligation to conduct themselves in a manner compatible with UNLV's function as an educational institution.

An example of academic misconduct is plagiarism. Plagiarism is using the words or ideas of another, from the Internet or any source, without proper citation of the sources. See the *Student Academic Misconduct Policy* (approved December 9, 2005) located at: <http://studentconduct.unlv.edu/misconduct/policy.html>. It is my belief that academic honesty is the cornerstone of the educational community. There will be severe consequences for academic misconduct. Please refer to the college catalog: Administrative Policy VIII.E.

A condition of your enrollment in this class is that you agree to the following statements of student behavior:

- I agree that I, and only I, will be the one completing and submitting class materials in my name.
- I agree that I will not directly copy or plagiarize material from any source. I am familiar with, and I agree not to violate, copyright laws. If small amounts of material from other sources are used as part of any class assignment, I agree to clearly indicate such and properly cite the source according to APA standards.
- I agree that I will not buy materials and submit them as my own.
- I agree that, unless approved by the instructor, I will not share answers/thoughts/ideas to homework assignments or any other course material with fellow classmates.
- I acknowledge that failure to comply with any of the above statements may result in failure of an assignment, removal from the course, failure of the course, and discipline action deemed appropriate by the instructor and or policies and procedures set forth by college.

A student may be dropped from this course for any behavior that is disrupting the learning environment of other students. Cheating, plagiarism, and other forms of academic misconduct will not be tolerated. No form of academic misconduct is acceptable. Academic misconduct includes any act that violates the academic process of the university. These acts include (but are not limited to) cheating on an examination, stealing or sharing examination & quiz questions among fellow students, substituting one person for another at an examination, violating the procedures of an examination, falsifying data, destroying or tampering with or stealing a computer program or file, and plagiarizing (using as one's own the ideas or writing of another). Students who cheat may be expelled from the course, receive a grade of "F", and may receive additional disciplinary action as outlined in the University and community college System of Nevada document, Rules and Disciplinary Procedures for Members of the University Community.

**Copyright** – The University requires all members of the University Community to familiarize themselves and to follow copyright and fair use requirements. **You are individually and solely responsible for violations of copyright and fair use laws. The university will neither protect nor defend you nor assume any responsibility for employee or student violations of fair use laws.** Violations of copyright laws could subject you to federal and state civil penalties and criminal liability, as well as disciplinary action under University policies. Additional information can be found at: <http://provost.unlv.edu/copyright/>.

**Disability Resource Center (DRC)** – The Disability Resource Center (DRC) determines accommodations that are "reasonable" in promoting the equal access of a student reporting a disability to the general UNLV learning experience. In so doing, the DRC also balances instructor and departmental interests in maintaining curricular standards so as to best achieve a fair evaluation standard amongst students being assisted. In order for the DRC to be effective it must be considered in the dialog between the faculty and the student who is requesting accommodations. For this reason faculty should only provide students course adjustment after having received this "Academic Accommodation Plan." If faculty members have any questions regarding the DRC, they should call a DRC counselor.

UNLV complies with the provisions set forth in Section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act of 1990. The DRC is located in the Student Services Complex (SSC-A), Room 143, phone (702) 895-0866, fax (702) 895-0651. For additional information, please visit: <http://drc.unlv.edu/>.

If you have a special need/disability, please let me know outside of class sometime during the first week of the course. This helps me to adjust or alter plans so that problems can be minimized and your learning experience can be maximized.

**Religious Holidays Policy** -- Any student missing class quizzes, examinations, or any other class or lab work because of observance of religious holidays shall be given an opportunity during that semester to make up missed work. The make-up will apply to the religious holiday absence only. It shall be the responsibility of the student to notify the instructor no later than the last day of late registration of his or her intention to participate in religious holidays which do not fall on state holidays or periods of class recess. This policy shall not apply in the event that administering the test or examination at an alternate time would impose an undue hardship on the instructor or the university which could have been avoided. For additional information, please visit: <http://catalog.unlv.edu/content.php?catoid=4&navoid=164>.

**Tutoring** - The Academic Success Center (ASC) provides tutoring and academic assistance for all UNLV students taking UNLV courses. Students are encouraged to stop by the ASC to learn more about subjects offered, tutoring times and other academic resources. The ASC is located across from the Student Services Complex, #22 on the current UNLV map. Students may learn more about tutoring services by calling (702) 895-3177 or visiting the tutoring web site at: <http://academicsuccess.unlv.edu/tutoring/>.

**UNLV Writing Center** - One-on-one or small group assistance with writing is available free of charge to UNLV students at the Writing Center, located in CDC-3-301. Although walk-in consultations are sometimes available, students with appointments will receive priority assistance. Appointments may be made in person or by calling 895-3908. The student's Rebel ID Card, a copy of the assignment (if possible), and two copies of any writing to be reviewed are requested for the consultation. More information can be found at: <http://writingcenter.unlv.edu/>

**Nondiscrimination:** The University of Nevada Las Vegas does not discriminate on the basis of race, color, creed, religion, national or ethnic origin, gender, age, sexual orientation, disability, or veteran status.

**Rebelmail** – By policy, faculty and staff should e-mail students' Rebelmail accounts only. Rebelmail is UNLV's Official e-mail system for students. It is one of the primary ways students receive official university communication such as information about deadlines, major campus events, and announcements. All UNLV students receive a Rebelmail account after they have been admitted to the university.

**Student Responsibilities:** Students are responsible for attending seminars; preparing and submitting evaluations each week; attainment of a satisfactory level of achievement for the course.

**Learning Environment:** The classroom is intended to be a place of learning. As such, and as specified in the UNLV Catalog, no pagers, cell phones, or other potentially disruptive devices are allowed in either lecture or lab. If you bring a pager or cell phone to class and it goes off during class you may not answer it or leave the classroom in order to answer it. If you bring a laptop to class you may not log on to email, twitter, YouTube, Facebook, etc. – it may only be used for course related purposes. Bringing children to class is not allowed. Anyone wishing to tape lectures may do so with my approval.