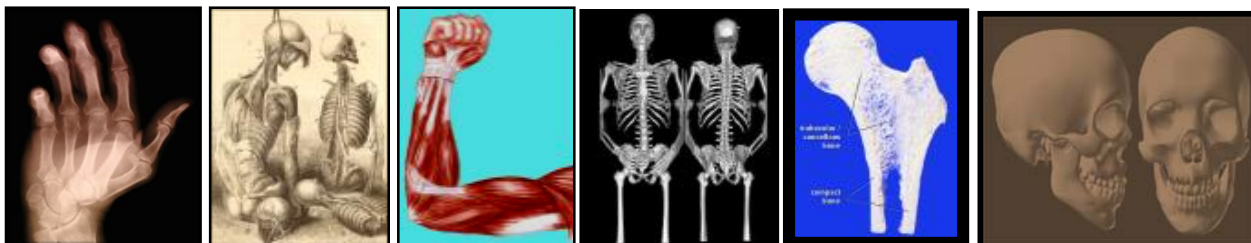


Human Osteology

ANTH 462/662



... The only two hard tissues of the human body that survive time: bones and teeth. Everything else disintegrates, for even the loveliest woman is biochemically just four buckets of water and one bucket of salts.
--Félix Martí-Ibáñez (1961:25)

Welcome to Osteology Boot Camp Fall 2016

(... where you will dream, sleep, eat and breathe bones for a semester ...)

This is a **4-credit, intensive lab** course that provides an overview of the methods used in biological anthropology for studying human (skeletonized) remains, as well as those methods often used to establish identity for individuals. Osteological methods and analyses applicable to archaeology, bioarchaeology, forensic anthropology, and paleoanthropology are covered. The course first and foremost is focused on the **evolution and anatomy of the human skeleton**, with emphasis on the phylogenetic history of skeletal segments, placing them within a broad evolutionary framework. Students will learn to identify all the bones in the human skeleton, major landmarks in each skeletal element, and basic skeletal biology. Second level analyses involving metrics, age, sex, stature, pathology and biomechanical stress are also reviewed, and students will work on mastering these skills.

The course will include a mix of presentations and discussions followed by hands-on lab exercises so that students can familiarize themselves with bones and standard osteological methods. In addition, ethical issues concerning the use of human skeletal remains in archaeology, forensics and research will be covered and discussed.

The professor has taught this course for the last 30 years. Like Dr. Tim White, whose text you are using, she has found that "...students learn best when challenged by **frequent examinations** ... and when kept to a **rigorous schedule of ... quizzes and frequent comprehensive exams** (with timed identification stations)" [White p. 5].

Note: Students must stay the entire class period, Monday & Wednesday 8:30-11:20 and participate in lab clean up at the end of every class (bones put away, tables washed, area cleaned up). Some days we may all be able to leave early, but in general we go to 11:20.

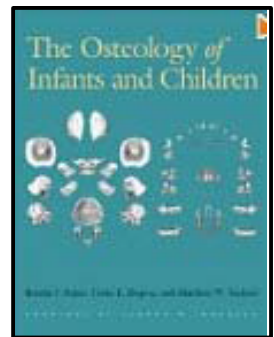
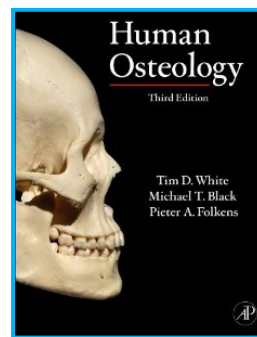
Learning goals

- Demonstrate an advanced knowledge of bone identification and morphology including landmarks and features.
- Demonstrate methods used to analyze human skeletal remains.
- Apply their foundational knowledge in anthropological and medical investigations using the human skeleton.
- Engage in real-world problems where skeletal identification is used.
- Discuss, at an introductory level, some of the more advanced areas of human osteology such as paleopathology, human evolution, forensics and bioarchaeology.

Required texts – Always bring to class:

White, Tim D. (with Michael T. Black & Pieter Folkens) *Human Osteology* (3rd edition). NY: Academic Press. 2012. **MUST BE THIS EDITION – NO OTHER EDITIONS WILL WORK.**

Baker, Brenda (with Tosha Dupras and Matthew Tocheri) Texas A & M. 2005.



Course Requirements and Assignments

(10% of grade) Attendance, Class Participation & Lab Worksheets: Students must be in class on time, and stay for the entire class period. **Attendance is mandatory for this course and attendance will be taken.** The lab worksheets will not be collected but we will monitor how well you are doing each lab and using the worksheets in the labs. These serve as the basis for all exams. Anything on a worksheet is fair game for being asked on a practical, test or the final exam. Students are expected to read and study the material prior to each class, except for the first day of class. **Students must read and study the texts in addition to studying the bones and worksheets.** Class starts at 8:30. At 8:35 the doors will be locked and no late entries permitted.

(20% of grade) Tests: There will be 2 *written tests* on evolutionary theory, skeletal biology and form and function of bones (taken from lectures, the texts, and worksheets). Together, the tests will account for 20% of the final grade.

(50% of grade) Practicals: About every week there will be a bone *practical* (being given bones to identify to test knowledge within a 30 second time frame). These will test students on their ability to identify bone elements, features, landmarks and fragments as covered in prior labs. Taken together, practicals will account for 50% of the final grade. Practicals start at 8:35 sharp.

(10%) Final Cumulative Practical and (10%) Final Written Exam: The final practical will cover the entire skeleton (10% of final grade), and the final written will focus more on the material in the last several weeks of class, but also major topics covered throughout the semester(10%).

Summary:

Participation/Worksheets	10% of final grade
Tests I and II	20%
Practicals (#0-12)	50%
Final Practical	10%
Final Test III	10%

Policy on Missed Tests, Missed Labs, and Missed Classes

If students need to miss class, they **must contact me ahead of class time** (leaving email or voice mail on my office phone). If there is no accounting for your absence, you will receive a score of F for any missed tests. If you are sick, in an accident, have some family emergency or car trouble, need to leave town for a death or illness, or for any other documented legitimate reason, you must **provide tangible proof** the next class day of what made you miss class. **Tests cannot be made-up**, but if students have contacted me ahead of time, and must miss taking them, and they have a certifiable reason why they missed class, **the lowest grade for a practical or test will be substituted for the missed test** (instead of an F). Given the nature of this intensely scheduled class, it is the student's responsibility to account for absences in such a way that they are legitimate, well documented and ahead of time. **Labs cannot be re-set up** and therefore if they are missed, students should try and complete the worksheet using the textbook on their own time and getting notes from other students.

Note on Time Spent in Class

There is no WebCampus for the course, and PowerPoints and handouts will not be posted on the web. You need to **take notes** in class. (check this study: <http://m.theglobeandmail.com/life/parenting/back-to-school/laptops-in-class-lowers-students-grades-canadian-study/article13759430/?service=mobile>) PowerPoints (PPT) will not be distributed. Given the intensive boot-camp style of learning in this lab, you must use each class to study the material and learn it while you are in class with the bones in front of you. **You must use the time in lab to memorize, study and learn the material. Bring both texts to every class.**

Lab/Class Rules

1. Students must stay the entire class period, Mondays and Wednesdays 8:30-11:20 and participate in lab clean up at the end of every class (bones put away, tables wiped clean, area/floors clean).
2. Be careful and respectful when working with the skeletal material.
3. Do not write on the bones or lick the bones.
4. If you drop a bone and it breaks, let us know! It happens, but do be as careful as you can be.
5. Take bathroom breaks as needed; there will not be a formal break time during the class.
6. Drinks (but no food) are permitted in the lab.
7. *****No photo taking permitted at any time in the lab.*****
8. No cell phones permitted in the lab (use them in the hall; keep them in your bag)
9. Computers and ipads are permitted but be warned that there is a lot of dust and dirt that will accompany each lab.

<p>Aug. 26 MONDAY</p> <p>About the course – practicals, labs, syllabus</p> <p>Forms to sign: contract (mandatory), group photos (optional)</p> <p>PPT1. Intro to course; Skeleton and anatomical Terms</p> <p>Homework: Read White Ch. 1, 2 & 3(p. 1-42) and Baker Ch. 1 (p. 3-10)</p>	<p>Aug. 28 WEDNESDAY</p> <p>Practical 0</p> <p>Lab 1. Bone Names & Anatomical Terminology</p> <p>Worksheet 1</p> <p>Use in lab to complete worksheet: White Ch. 2 (p. 11-24) Baker Ch. 1 (p. 7-10)</p>
<p>Sept. 2 MONDAY</p> <p>UNLV CLOSED ☺</p> <p>Homework:</p> <p>Study Worksheet 1 terms, orientation, names of all major bones</p> <p>Also -- look over White: Ch. 4 p. 43-51; Look over Sections 4.7-4.21 (p. 60-95); Ch. 5 p. 101-103 Baker Ch. 3 p. 31-38 (vault)</p>	<p>Sept. 4 WEDNESDAY</p> <p>PPT2. Cranium I: Evolutionary and Comparative Anatomy</p> <p>Lab 2. Cranium I: Cranial and Mandibular Skeletal Anatomy— Cranial Skeletal Elements and Features on those elements</p> <p>Worksheet 2</p> <p>Use in lab to complete worksheet: White: Ch. 4 p. 43-51; Sections 4.7-4.21 (p. 60-95); Ch. 5 p. 101-103 Baker: Ch. 3 p. 31-38 (vault)</p> <p>Homework: Study Worksheets 1 & 2 -- Cranial bones (names, landmarks) and mandible; Skeletal orientation and terms</p>
<p>Sept. 9 MONDAY</p> <p>Practical 1</p> <p>PPT3. Cranium II: Functional Anatomy, Growth and Development</p> <p>Homework: Look over White: Ch. 4 p. 52-54 Ch. 18 p. 385-387; Ch. 6 p. 129-130 (hyoid) Ch. 5 esp. p. 107-111 (Glance at 112-128) Baker: Ch. 3 & 4 (p. 38-52) Ch. 5 quick look (p. 53-71)</p>	<p>Sept. 11 WEDNESDAY</p> <p>Lab 3. Cranium II: Growth, Development and Aging (Suture Closure and Dental Wear)</p> <p>Worksheet 3</p> <p>Use in lab to complete worksheet: White: Ch. 4 p. 52-54; Ch. 18 p. 385-387 Ch. 6 p. 129-130 (hyoid); Ch. 5 esp. p. 107-111 Baker: Ch. 3 & 4 (p. 38-52)</p>

<p>Sept. 16 MONDAY</p> <p>Practical 2</p> <p>PPT4. Cranium III: Cranial Variation—Metrics and Ancestry</p> <p>Homework -- read White: Re-read Ch. 3 p.25-42; Ch. 4 p. 54-59 (osteometric points); Ch. 21 p. 475-479 (discrete traits); Ch. 18 p. 421-426 (ancestry)</p>	<p>Sept. 18 WEDNESDAY</p> <p>Lab 4. Cranium III: Landmarks (osteometric points), Metrics, Discrete Traits and Ancestry</p> <p>Worksheet 4</p> <p>Use in lab to complete worksheet: White: Ch. 4 p. 54-59 (osteometric points); Ch. 21 p. 475-479 (discrete traits); Ch. 18 p. 421-426 (ancestry)</p> <p>Homework – Study for Practical</p>
<p>Sept. 23 MONDAY</p> <p>Practical 3</p> <p>PPT5. Cranium IV: Cranial Sexual Dimorphism, Trauma and Pathology</p> <p>Homework -- read White Ch. 18 p. 408-415; Ch. 19 p. 429-432, p. 437-439, 448-449, 454-456; Case Study: Ch. 23 p. 499-505</p>	<p>Sep. 25 WEDNESDAY</p> <p>Lab 5. Cranium IV: Sexing Techniques & Case Studies from Forensics, Bioarchaeology and Paleontology-- Individuation and Biological Identity</p> <p>Worksheet 5</p> <p>Use in lab to complete worksheet: White Ch. 18 p. 408-415; Ch. 19 p. 429-432, p. 437-438, 448-449, 454-456</p> <p>Homework – Study for Practical</p>
<p>Sept. 30 MONDAY</p> <p>Practical 4</p> <p>PPT6. Vertebrae: Evolution, Structure and Function</p> <p>Homework -- Read White: Ch. 6 (p. 131-147) Baker: Ch. 6 (p. 75-83)</p>	<p>Oct. 2 WEDNESDAY</p> <p>Lab 6. Cervical and Thoracic Vertebrae</p> <p>Worksheet 6</p> <p>Use in lab to complete worksheet: White: Ch. 6 (p. 131-147) Baker: Ch. 6 (p. 75-83)</p> <p>Homework – Study for Practical</p>

<p>Oct. 7 MONDAY</p> <p>Practical 5</p> <p>PPT7a. Bipedalism, Dimorphism and Birthing Guest Speaker: Dr. Dean Falk</p> <p>Homework – Read White Ch. 6 (p. 143-147) (lumbar) Baker: Ch. 6 (p. 81-86) (lumbar and sacrum) White: Ch. 11 (p. 219-226) (sacrum) Ch. 18 (p. 441-443) (osteoarthritis)</p>	<p>Oct. 9 WEDNESDAY</p> <p>Lab 7. Lumbar and Sacrum</p> <p>PPT7b. Bipedalism and the Spine</p> <p>Worksheet 7</p> <p>Use in lab to complete worksheet: White Ch. 6 p. 143-147 (lumbar) Baker: Ch. 6 p. 81-86 (lumbar and sacrum) White: Ch. 11 p. 219-226 (sacrum) Ch. 18 p. 441-443 (osteoarthritis)</p> <p>Homework – Study for Test I (Worksheets 1-7, bones covered, all assigned readings, PPT lectures 1-7)</p>
<p>Oct. 14 MONDAY</p> <p><i>Test I – Focus on Cranium & Mandible; Verts & Sacrum: PPT Lectures 1-7, all text pages covered, & all Labs/Worksheets 1-7</i></p>	<p>Oct. 16 WEDNESDAY</p> <p>PPT8 Functional Anatomy of Thorax</p> <p>Worksheet 8</p> <p>Lab 8. Sternum and Ribs</p> <p>Use in lab to complete worksheet: White Ch. 7 (p. 149-159) Baker Ch. 7 (p. 93-97)</p>
<p>Oct. 21 MONDAY</p> <p>Practical 6</p> <p>PPT9 Evolution, Functional Anatomy and Pathology of the Shoulder Girdle</p> <p>Homework – Look over White Ch. 8 p. 161-174; Ch. 24 p. 507-512 (child abuse) Baker: Ch. 7 (p. 97-102)</p>	<p>Oct. 23 WEDNESDAY</p> <p>Lab 9. Clavicle and Scapula</p> <p>Worksheet 9</p> <p>Use in lab to complete worksheet: White: Ch. 8 (p. 161-174) Baker: Ch. 7 (p. 97-102)</p>

<p>Oct. 28 MONDAY</p> <p>Practical 7</p> <p>PPT10. Upper Limb Bones: Comparative and Functional Anatomy</p> <p>White: Ch. 9 (p. 175-198) White: Ch. 14 (p. 302-307) White: Ch. 25 (p. 513-519 – case study) Baker: Ch. 8 (p. 103-111)</p>	<p>Oct. 30 WEDNESDAY</p> <p>Lab 10. Arm: Humerus, Radius & Ulna</p> <p>Worksheet 10</p> <p>Use in lab to complete worksheet: White: Ch. 9 (p. 175-198) White: Ch. 14 (p. 302-307) Baker: Ch. 8 (p. 103-111)</p>
<p>Nov. 4 MONDAY</p> <p>Practical 8</p> <p>PPT11a. “Torture and Violence in an Ancient Southwest Setting: Evidence from a Reconstruction of Foot bones from a Commingled Bone Site” Guest Lecture: Anna Osterholtz, UNLV Foundation Presidential Research Fellow & PhD candidate</p> <p>White: Ch. 10 (p. 199-218); Ch. 13 (p. 271-294) Baker: Ch. 9 (p. 124-153)</p>	<p>Nov. 6 WEDNESDAY</p> <p>PPT11b. Evolution and Functional Anatomy of the Hand and Foot Bones</p> <p>Lab 11. Hand & Foot: Carpals, Metacarpals and Hand Phalanges; Tarsals, Metatarsals and Foot Phalanges</p> <p>Worksheet 11</p> <p>Use in lab to complete worksheet: White: Ch. 10 (p. 199-218) Baker: Ch. 9 (p. 124-137) White Ch. 13 p. 271-297; & p. 27 (talus) Baker: Ch. 9 (p. 138-153)</p> <p>Homework -- Study for Test II Focus on upper body: PPT Lectures 8-11; all text pages covered, Labs/Worksheets 8-11</p>
<p>Nov. 11 MONDAY</p> <p>UNLV CLOSED ☺</p> <p>Homework: Study for Test II</p>	<p>Nov. 13 WEDNESDAY</p> <p><i>Test II –Focus on upper body: Lectures 8-11, all text pages covered, & Labs/Worksheets 8-11</i></p>

<p>Nov. 18 MONDAY</p> <p>PPT12. Functional Anatomy and Evolution of Pelvis</p> <p>Worksheet 12</p> <p>Lab 12. Os coxae</p> <p>Use in lab to complete worksheet: White: Ch. 11 Os Coxae (Pelvis) p. 226-240 White Ch. 18 p. 417-419 & p. 394-404 White: Ch. 19 p. 436 (dislocation) p. 442 (osteoarthritis) Baker: Ch. 6 (p. 87-92)</p>	<p>Nov. 20 WEDNESDAY</p> <p>Practical 9</p> <p>PPT13. Sexual Dimorphism, Developmental Changes and Pathology in the Adult Pelvis</p> <p>Worksheet 13</p> <p>Lab 13. Aging and Sexing the Pelvis</p> <p>Use in lab to complete worksheet: White: Ch. 11 Os Coxae (Pelvis) p. 226-240 White Ch. 18 p. 417-419 & p. 394-404 Ch. 19 p. 436 (dislocation) p. 442 (oa)</p>
<p>Nov. 25 MONDAY</p> <p>Practical 10</p> <p>PPT14. Evolution and Functional Anatomy of the Leg Bones</p> <p>Homework – Look over White: Ch. 12 p. 241-270; White: Ch. 14 (p. 308-316) Baker: Ch. 8 (p. 112-123)</p>	<p>Nov. 27 WEDNESDAY</p> <p>Lab 14. Anatomy of the Femur, Patella, Tibia and Fibula</p> <p>Worksheet 14</p> <p>Use in lab to complete worksheet: White: Ch. 12 p. 241-270 White: Ch. 14 (p. 308-316) Baker: Ch. 8 (p. 112-123)</p>
<p>Dec. 2 MONDAY</p> <p>Practical 11</p> <p>PPT15. Growth, Development, and Pathology of the Lower Limb</p> <p>Lab 15. Metric Analysis, Stature Reconstruction, Pathology.</p> <p>Worksheet 15</p> <p>Use in lab to complete worksheet: White: Ch. 18 p. 391 (est. age from subadult lb lengths); Ch. 18 p. 418-421 (stature) Ch. 19 p. 434-435 (fractures), p. 441-443 (Joint diseases), p. 444-447 (infection), p. 450-451 (dysplasias)</p>	<p>Dec. 4 WEDNESDAY</p> <p>Practical 12</p> <p>“Alas Poor Yorick!”</p> <p>Lowest score on a practical replaced with the highest score on a practical, plus 20 points added to combined scores for Test I and II.</p> <p>Study for accumulative Practical (50 stations, all bones, landmarks and features)</p>

Exam Day -- Dec. 11 Wednesday
8:00am- 10:00 am

50 station Practical (30 min)

Short break

Final Exam: Test III – Focus on Lower Body:
Lectures 12-15, all text pages covered, &
Labs/Worksheets 12-15 -- Plus a few items
covered in Test I and II and related readings
and worksheets. (1 hour)

**Extra Credit Opportunity: Memorize and
Recite on last day of class**

The Tragedy of Hamlet, Prince of Denmark

Act 5, Scene 1 (A churchyard cemetery)

HAMLET speaks-

“Let me see.”

Takes the skull

“Alas, poor Yorick! I knew him, Horatio: a fellow of infinite jest, of most excellent fancy: he hath borne me on his back a thousand times; and now, how abhorred in my imagination it is! My gorge rims at it. Here hung those lips that I have kissed I know not how oft. Where be your gibes now? Your gambols? Your songs? Your flashes of merriment, that were wont to set the table on a roar? Not one now, to mock your own grinning? Quite chap-fallen? Now get you to my lady's chamber, and tell her, let her paint an inch thick, to this favour she must come; make her laugh at that.”

<http://shakespeare.mit.edu/hamlet/hamlet.5.1.html>



Other reminders about UNLV rules and regulations:

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 Student 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: <https://www.unlv.edu/studentconduct/student-conduct>.

Copyright—The University requires all members of the University Community to familiarize themselves **with** 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://www.unlv.edu/provost/copyright>.

Disability Resource Center (DRC)—The UNLV Disability Resource Center (SSC-A 143, <http://drc.unlv.edu/>, 702-895-0866) provides resources for students with disabilities. If you feel that you have a disability, please make an appointment with a Disabilities Specialist at the DRC to discuss what options may be available to you. If you are registered with the UNLV Disability Resource Center, bring your Academic Accommodation Plan from the DRC to the instructor during office hours so that you may work together to develop strategies for implementing the accommodations to meet both your needs and the requirements of the course. Any information you provide is private and will be treated as such. To maintain the confidentiality of your request, please do not approach the instructor in front of others to discuss your accommodation needs.

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 **within the first 14 calendar days of the course for fall and spring courses (excepting modular courses), or within the first 7 calendar days of the course for summer and modular courses**, of his or her intention to participate in religious holidays which do not fall on state holidays or periods of class recess. For additional information, please visit: <http://catalog.unlv.edu/content.php?catoid=6&navoid=531>.

Transparency in Learning and Teaching—The University encourages application of the transparency method of constructing assignments for student success. Please see these two links for further information:

<https://www.unlv.edu/provost/teachingandlearning>

<https://www.unlv.edu/provost/transparency>

Incomplete Grades—The grade of I—Incomplete—can be granted when a student has satisfactorily completed three-fourths of course work for that semester/session but for reason(s) beyond the student’s control, and acceptable to the instructor, cannot complete the last part of the course, and the instructor believes that the student can finish the course without repeating it. The incomplete work must be made up before the end of the following regular semester for undergraduate courses. Graduate students receiving “I” grades in 500-, 600-, or 700-level courses have up to one calendar year to complete the work, at the discretion of the instructor. If course requirements are not completed within the time indicated, a grade of F will be recorded and the GPA will be adjusted accordingly. Students who are fulfilling an Incomplete do not register for the course but make individual arrangements with the instructor who assigned the I grade.

Tutoring and Coaching—The **Academic Success Center (ASC)** provides tutoring, academic success coaching and other academic assistance for all UNLV undergraduate students. For information regarding tutoring subjects, tutoring times, and other ASC programs and services, visit <http://www.unlv.edu/asc> or call [702-895-3177](tel:702-895-3177). The ASC building is located across from the Student Services Complex (SSC). Academic success coaching is located on the second floor of the SSC (ASC Coaching Spot). Drop-in tutoring is located on the second floor of the Lied Library and College of Engineering TEB second floor.

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 702-895-3908. 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/>.

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. Students’ e-mail prefixes are listed on class rosters. The suffix is always @unlv.nevada.edu. **Emailing within WebCampus is acceptable.**

Final Examinations—The University requires that final exams given at the end of a course occur at the time and on the day specified in the final exam schedule. See the schedule at: <http://www.unlv.edu/registrar/calendars>.

Library statement:

Students may consult with a librarian on research needs. For this class, the Subject Librarian is (https://www.library.unlv.edu/contact/librarians_by_subject). UNLV Libraries provides

resources to support students' access to information. Discovery, access, and use of information are vital skills for academic work and for successful post-college life. Access library resources and ask questions at <https://www.library.unlv.edu/>.