

# RADR 2309

## Radiographic Imaging Equipment

### *Fall 2015*

## Faculty Information

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**Name:** Carrie Nanson  
**E-Mail:** cnanson@odessa.edu  
**Phone:** (432) 335-6469  
**Office:** CT/HSB 113

Office Hours	
<b>Campus Office Hours:</b>	Monday & Wednesday 1-4 Friday 8-12
<b>Online Office Hours</b>	

### About Your Instructor

#### Preferred Method of Communication:

The preferred method of communication is through e-mail, but you may also call me in my office if you need to.

#### Expectations for Engagement for Instructor:

As an instructor, I understand the importance of clear, timely communication with my students. In order to maintain sufficient communication, I will

- provide my contact information at the beginning of the syllabus;
- respond to all messages within 24 hours if received Monday through Thursday, and within 48 hours if received Friday through Saturdays. I am not online Sundays;
- notify students of any extended times that I will be unavailable and provide them with alternative contact information (for me or for my supervisor) in case of during the time I am unavailable.

As an instructor, I understand that my students will work to the best of their abilities to fulfill the course requirements. In order to help them in this area, I will

- provide clear information about grading policies and assignment requirements in the course syllabus, and
- communicate any changes to assignments and/or to the course calendar to students as quickly as possible.

As an instructor, I understand that I need to provide regular, timely feedback to students about their performance in the course. To keep students informed about their progress, I will

- post grades for discussion postings within one week of the discussion thread closing.
- provide grades for assignments within 2 weeks of the due date.

## Textbook Information and Required Hardware/Software

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### Textbook(s):

Principles of Radiographic Imaging: An Art and a Science, 5<sup>th</sup> ed. Carlton/Adler

Principles of Radiographic Imaging Workbook, 5<sup>th</sup> ed. Carlton/Adler

The Integrated Radiography Workbook, 6<sup>th</sup> ed. DeAngelis

### Hardware:

### Software:

### Computer Browsers:

- Mac users should use Firefox
- PC users may use any browser except IE10

### Websites:

You will access course materials for this course by logging into **Blackboard** at <https://blackboard.odessa.edu/webapps/login/>.

Students, if you have problems logging onto Blackboard, please call the Student Success Center at 335-6673 for assistance.

## Campus Computer Labs

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# Information About the Course

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## Course Description

Equipment and physics of x-ray production. Includes basic x-ray circuits. Also examines the relationship of conventional and digital equipment components to the imaging process.

## Course Prerequisites:

RADR 1311(Source: Odessa College Catalog of Courses 2012-2013, page 178)

## Course coerequisites

RADR 1266, RADR 1303, and RADR 2301

## Course Topics:

Chapter 1	Basic Mathematics
Chapter 2	Radiation Concepts
Chapter 3	Electricity
Chapter 4	Electromagnetism
Chapter 5	X-Ray Equipment
Chapter 6	The X-Ray Tube
Chapter 7	X-Ray Production

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# Grading

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Type of Assignment	Points	Learning Objectives
Unit Exams	40%	
Daily Grades/Notes/All other assignments	20%	
Final Exam	40%	
	100%	TOTAL

Please understand that this is a required course for the Radiologic Technology program in order to prepare you to become an entry-level radiologic technologist. Quality work and active participation is expected and not to be negotiated. As a general policy, grades will be taken in class. Any written assignments or tests will be graded outside of class. You can expect feedback on assignments within a week's time.

## Grading Scale:

- "A" = 93-100
- "B" = 84-92
- "C" = 75-83
- "F" = 0-74

# Student Course Participation

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**As a student, I understand that I am responsible for keeping up with the course. To help with this, I will**

- identify alternative computer and internet access in case my primary computer crashes or my internet service is unavailable;
- recognize that the college provides free Wi-Fi and computer labs during regular campus hours to help me with accessing my course; and,

- understand that my instructor does not have to accept my technical issues as a legitimate reason for late or missing work if my equipment or service is unreliable.

**As a student, I understand that it is my responsibility to communicate quickly with the instructor any issue or emergency that will impact my involvement with or performance in the class. This includes, but is not limited to**

- getting “kicked off” of the system during tests or quizzes;
- having trouble submitting assignments; and
- dealing with a traumatic personal event.

**As a student, I understand that it is my responsibility to understand course material and requirements and to keep up with the course calendar. While my instructor is available for help and clarification, I will**

- seek out help from my instructor and/or from tutors;
- ask questions if I don’t understand; and
- access my course several times during the week to keep up with assignments and announcements.

## Course Policies

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### Disclaimer

This syllabus is tentative and subject to change in any part at the discretion of the instructor. Any changes will be in accordance with Odessa College policies. Students will be notified of changes, if any, in timely manner.

### Original Effort

The work submitted for this course must be original work prepared by the student enrolled in this course. Efforts will be recognized and graded in terms of individual participation and in terms of ability to collaborate with other students in this course.

### Course Alignment with Industry Standards

This program is accredited by the Joint Review Committee on Education in Radiologic Technology (JRCERT). The course content is outlined in the American Society of Radiologic Technologist (ASRT) Curriculum Guide.

### Digital Protocol

Cell phones must be placed on either *vibrate* or *silent* mode and are to be accessed in emergency cases only. The use of laptops or any other digital device is permitted in order to facilitate note-taking relative to instruction. Any written assignments will be submitted electronically on Blackboard. **The electronic recording of the time on Blackboard will be considered the time of assignment submission. Take necessary steps to ensure that your assignments are submitted on “Blackboard” time.** Back-up and/or additional copies of all assignments submitted is encouraged. **Computers/printers are available to OC students in the LRC (301-303); therefore, not having access to a computer due to technical issues (crash; corrupted files) will not be considered as an acceptable reason for not completing assignments.** If there is a loss of server connection with Odessa College due to maintenance, then an email will be sent to student with pertinent information and status reports. Assignments submitted electronically need to be **WORD documents (doc or docx).**

### Attendance Policy

Students are expected to attend class regularly. Attendance will be recorded using a “sign-in” sheet. Excessive absences will be grounds for disciplinary action, and will be determined on a case-by-case basis. If you are more than 15 minutes late to class or leave class early without

notifying the instructor, this will count as an absence. Points will be deducted from a student's final course grade for absences (1-2abs. = .5 each, 3-5 abs. = .75 each, 6-7 abs. = 1 point each).

## **AVID**

This course has been identified as a course by Career, Technical, and Workforce Education as one in which teaching and learning strategies adopted by AVID will be implemented. As a student in this course, you will be expected to develop an understanding of the strategies, to model the strategies, to maintain fidelity of implementation, and to examine how these strategies may impact your effectiveness as a professional in your chosen area of occupation, either through coursework or practicum experience as outlined by the course instructor.

## **Grade Inquiry Policy**

It is the responsibility of the individual taking this course to maintain accurate track of assignment submissions and grades. There will be opportunities during the semester to meet with the instructor to discuss your academic progress. Contact the instructor to schedule an appointment. Class time will not be used for grade inquiries. All grades are final.

## **General Course Requirements**

1. Attend class and participate.
2. Contribute and cooperate with civility.
3. **Submit assignments on time. Late work will not be accepted. Medical and/or family circumstances that warrant an extension on assignments need to be presented to the instructor. Extensions will be allowed at the instructor's discretion.**
4. The final exam is comprehensive and based on the ARRT format.

## **Incomplete Policy**

An 'Incomplete' grade may be given only if:

1. The student has passed all completed work
2. If he/she has completed a minimum of 75% of the required coursework. A grade of an "I" will only be assigned when the conditions for completions have been discussed and agreed upon by the instructor and the student.

# Course Schedule

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## MODULE 1:

### Chapter 1: Basic Mathematics

Read Chapter 1: Take notes

Complete: review questions at end of chapter  
Worksheet 1-1  
DeAngelis p. 573 (even)  
DeAngelis p. 575 (even)  
DeAngelis p. 576 41-50

Quiz over Chapter 1 to be completed on Blackboard

### Chapter 2: Radiation Concepts

Read Chapter 2: Take notes

Complete: review questions at end of chapter  
Worksheet 2-1  
DeAngelis Chapter 6 & 14

Test #1: Chapters 1 & 2

## MODULE 2:

### Chapter 3: Electricity

Read Chapter 3: Take notes

Complete: review questions at end of chapter  
Worksheet 3-1 p. 19, 1-10  
DeAngelis Chapter 7

### Chapter 4: Electromagnetism

Read Chapter 4: Take notes

Complete: review questions at end of chapter  
Worksheet 4-3, 4-4, 4-5  
DeAngelis Chapter 7  
DeAngelis page 85  
DeAngelis Chapter 9

Test #2: Chapters 3 & 4

## MODULE 3:

### Chapter 5: X-Ray Equipment

Read Chapter 5: Take notes

Complete: review questions at end of chapter  
Worksheet 5-1  
DeAngelis Chapters 8 & 10

### Chapter 6: The X-Ray Tube

Read Chapter 6: Take notes

Complete: review questions at end of chapter  
Worksheet 6-1, 6-2  
DeAngelis Chapter 11  
DeAngelis page 114 & 116

Test #3: Chapters 5 & 6

## MODULE 4:

### Chapter 7: X-Ray Production

Read Chapter 7: Take notes

Complete: review questions at end of chapter  
Worksheet 7-1  
DeAngelis Chapter 15

Test #4: Chapter 7

FINAL EXAM: COMPREHENSIVE

## Core Objectives (COs)

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### Description of Core Objectives (CO's)

Given the rapid evolution of necessary knowledge and skills and the need to take into account global, national, state, and local cultures, the core curriculum must ensure that students will develop the essential knowledge and skills they need to be successful in college, in a career, in their communities, and in life. Therefore, with the assistance of the Undergraduate Education Advisory Committee, the Coordinating Board has approved guidelines for a core curriculum for all undergraduate students in Texas.

Through the application and assessment of objectives within the institution's core curriculum, students will gain a foundation of knowledge of human cultures and the physical and natural world; develop principles of personal and social responsibility for living in a diverse world; and advance intellectual and practical skills that are essential for all learning. Appropriate Odessa College faculty periodically evaluates all of the courses listed in the descriptions on the following pages of this catalog and keys them to Odessa College's Institutional Core Objectives (ICOs), as defined by the Texas Higher Education Coordinating Board (THECB). (Source: *Odessa College Catalog of Courses 2012-2013*, page 73)

**Odessa College's Core Objectives (COs):**

1. *Critical Thinking Skills (CT)* - to include creative thinking, innovation, inquiry, and analysis, evaluation and synthesis of information
2. *Communication Skills (COM)* - to include effective development, interpretation and expression of ideas through written, oral and visual communication
3. *Empirical and Quantitative Skills (EQS)* - to include the manipulation and analysis of numerical data or observable facts resulting in informed conclusions
4. *Teamwork (TW)* - to include the ability to consider different points of view and to work effectively with others to support a shared purpose or goal
5. *Social Responsibility (SR)* - to include intercultural competence, knowledge of civic responsibility, and the ability to engage effectively in regional, national, and global communities
6. *Personal Responsibility (PR)* - to include the ability to connect choices, actions and consequences to ethical decision-making

## Discipline Core Statement

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 = Required Core Objectives

Foundational Component Area	SCH	CT	COM	EQS	TW	SR	PR

## Course Objectives

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**End of Course Outcomes**

The student must differentiate between conventional and digital equipment; explain the physics of x-ray production; describe x-ray circuits; and relate conventional and digital equipment components to the imaging process.

## Learning Outcomes

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Outcome	ICO
	<i>Critical Thinking Skills</i> - to include creative thinking, innovation, inquiry, and analysis, evaluation and synthesis of information

	<i>Communication Skills</i> - to include effective development, interpretation and expression of ideas through written, oral and visual communication
Students must manipulate data to solve equations involving Ohm's Law and series and parallel circuits.	<i>Empirical and Quantitative Skills</i> - to include the manipulation and analysis of numerical data or observable facts resulting in informed conclusions
	<i>Teamwork</i> - to include the ability to consider different points of view and to work effectively with others to support a shared purpose or goal
	<i>Social Responsibility</i> - to include intercultural competence, knowledge of civic responsibility, and the ability to engage effectively in regional, national, and global communities
	<i>Personal Responsibility</i> - to include the ability to connect choices, actions and consequences to ethical decision-making

## Odessa College Policies

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### Tuition Discounts

The "**First Course is Free**" discount waives standard tuition and fees for the first 3 credit hours taken at Odessa College. The discount applies to high school graduates taking their first class at Odessa College as well as transfer students taking their first class at Odessa College.

The "**Academic Progress Discount**" provides a 10% tuition discount upon completion of 30 credit hours until reaching 45 credit hours. It provides a 20% discount upon completion of 45 credit hours until reaching 60 credit hours. Student must maintain a 2.0 GPA to remain eligible for the discount.

### Academic Policies

Note that the OC Student Handbook states (page 32) that "[i]n cases of academic dishonesty, the instructor has the authority to impose appropriate scholastic penalties. Complaints or appeals of disciplinary sanctions may be filed in accordance with the college due process procedure. Copies of the college due process procedure are available in the office of The Director of Student Life (CC104)."

For more information on your rights and responsibilities as a student at Odessa College, please refer to the following: *The 411 of OC: Student Handbook 2012-2013; Student Rights & Responsibilities* <http://www.odessa.edu/dept/studenthandbook/handbook.pdf>

### Scholastic Dishonesty

Scholastic dishonesty shall constitute a violation of these rules and regulations and is punishable as prescribed by board policies. Scholastic dishonesty shall include, but not be limited to, cheating on a test, plagiarism and collusion.

#### "Cheating on a test" shall include:

- Copying from another student's test paper

- Using test materials not authorized by the person administering the test.
- Collaborating with or seeking aid from another student during a test without permission from the test administrator.
- Knowingly using, buying, selling, stealing or soliciting, in whole or in part, the contents of an unadministered test.
- The unauthorized transporting or removal, in whole or in part, of the contents of the unadministered test.
- Substituting for another student, or permitting another student to substitute for one's self, to take a test.
- Bribing another person to obtain an unadministered test or information about an unadministered test.
- "Plagiarism" shall be defined as the appropriating, buying, receiving as a gift, or obtaining by any means another's work and the unacknowledged submission or incorporation of it in one's own written work.
- "Collusion" shall be defined as the unauthorized collaboration with another person in preparing written work for fulfillment of course requirements. (Source: *Odessa College Student Handbook 2012-2013, page 29-30*)

### **Special Populations/Disability Services/Learning Assistance**

Odessa College complies with Section 504 of the Vocational Rehabilitation Act of 1973 and the Americans with Disabilities Act of 1990. If you have any special needs or issues pertaining to your access to and participation in this or any other class at Odessa College, please feel free to contact me to discuss your concerns. You may also call the Office of Disability services at 432-335-6861 to request assistance and accommodations.

Odessa College affirms that it will provide access to programs, services and activities to qualified individuals with known disabilities as required by **Section 504 of the Rehabilitation Act of 1973 and Title II of the Americans with Disabilities Act of 1990 (ADA)**, unless doing so poses an undue hardship or fundamentally alters the nature of the program or activity. Disabilities may include hearing, mobility or visual impairments as well as hidden disabilities such as chronic medical conditions (arthritis, cancer, diabetes, heart disease, kidney disorders, lupus, seizure disorders, etc.), learning disabilities or psychiatric or emotional disabilities. A student who comes to Odessa College with diagnosed disabilities which may interfere with learning may receive accommodations when the student requests them and submits proper documentation of the diagnosis. A Request for Accommodations form and guidelines for beginning the request process are available in the OC Help Center or on the Odessa College web site at <http://www.odessa.edu/dept/counseling/disabilities/index.htm>. The college strives to provide a complete and appropriate range of services for students with disabilities such as assistance with testing, registration, information on adaptive and assistive equipment, tutoring, assistance with access and accommodations for the classroom where appropriate. For information regarding services, students with disabilities should contact the Office of Disability Services in the OC Help Center located in Room 204 of the Student Union Building or call 432-335-6433. (Source: *Odessa College Catalog of Courses 2012-2013, page 52*)

### **Dropping a Course or Withdrawing from College**

Students wishing to drop a non-developmental course may do so online using WebAdvisor, at the Wrangler Express, or Registrar's Office. A student wishing to drop a developmental course or withdraw from college should obtain a drop or withdrawal form from the Wrangler Express or the Registrar's Office. Students are encouraged to consult with instructors prior to dropping a class. Students may not completely withdraw from the college by use of the Web. Students must drop a class or withdraw from college before the official withdrawal date stated in the class schedule. Students who are part of the Armed Forces Reserves may withdraw with a full refund if the withdrawal is due to their being ordered into active duty. A copy of the student's orders must be presented to the Registrar's Office at the time of the withdrawal. For details, please contact the Office of the Registrar. **No longer attending class does not automatically constitute withdrawal from that class, nor does a student's notification to an**

instructor that the student wishes to be dropped. Failure of a student to complete the drop/withdrawal process will result in a grade of “F.” (Source: *Odessa College Catalog of Courses 2012-2013, page 36*)

## Student Support Services and Technical Support

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### Blackboard Support

#### I can't log into my Blackboard Course, who do I contact?

Contact the Student Success Center: 432-335-6673 or online at [https://www.odessa.edu/dept/ssc/helpdesk\\_form.htm](https://www.odessa.edu/dept/ssc/helpdesk_form.htm). The SSC can provide you with your Blackboard login name. If you are not sure what your password is, they can reset your password.

#### I'm having a problem in my Blackboard Course, who do I contact?

For any problem that you have in your online course, always contact your Instructor first. Refer to the Instructor's Contact Information area of the Syllabus for their preferred method of contact and the expected response time.

#### Additional Blackboard Help Resources:

Service	Assistance Provided	Available
<b>Blackboard Help for Students</b>	Website with a searchable list of topics on how to navigate and use Blackboard for online courses.	Online <a href="#">Click here.</a>
<b>Blackboard On Demand Learning Center for Students</b>	This website provides an extensive list of short tutorial videos for student activities performed in Blackboard.	Online <a href="#">Click here.</a>
<b>Blackboard Collaborate: First Time Users</b>	If you have never used Blackboard Collaborate before, this website provides a system requirements check, configuration instructions, and training and resources area.	Online <a href="#">Click here.</a>
<b>Blackboard Collaborate: Essentials for Participants</b>	This website provides essential information for Participants of Collaborate sessions. Any Collaborate user, whether first-time or experienced, would benefit from reviewing the information here.	Online <a href="#">Click here.</a>

### Student E-mail Support

#### How do I set up, access, or update my Odessa College Student E-mail account?

Go to this website and follow the directions on the page: <http://www.odessa.edu/gmail/>.

**I can't access my student email! I forgot my password!**

Contact the Student Success Center: 432-335-6673 or online at [https://www.odessa.edu/dept/ssc/helpdesk\\_form.htm](https://www.odessa.edu/dept/ssc/helpdesk_form.htm). They can provide you with assistance in accessing your student email (created by OC) and can also assist with resetting your student email password. Make sure to have your student ID number available!

**Your Blackboard login name is associated with your OC created student email account. All Correspondence for this course will be submitted using your Odessa College student email address.**

**Support for Students with Disabilities  
How do I contact the Office of Special Populations?**

<b>Main Number</b>	432-335-6861
<b>Campus Location</b>	SUB 204N in the Student Union Building
<b>Email</b>	Becky Rivera-Weiss - <a href="mailto:brivera@odessa.edu">brivera@odessa.edu</a>
<b>Website</b>	To find out more about services provided by the Special Populations office, please visit: <a href="http://www.odessa.edu/dept/counseling/disabilities/index.htm">http://www.odessa.edu/dept/counseling/disabilities/index.htm</a>

**MURRY H. FLY LIBRARY**

<b>Main Number</b>	432-335-6640
<b>Email</b>	<a href="mailto:library@odessa.edu">library@odessa.edu</a>
<b>Campus Location</b>	1 <sup>st</sup> floor of the Learning Resources Center (LRC)
<b>Website with Additional Help and Information</b>	<a href="http://www.odessa.edu/dept/library">http://www.odessa.edu/dept/library</a> Ask A Librarian: <a href="https://www.odessa.edu/dept/library/askalibrarian.htm">https://www.odessa.edu/dept/library/askalibrarian.htm</a>

**Equipment and Services Provided:**

The Murry H. Fly Library, located in the Learning Resources Center, is a full-service academic library whose mission is to provide research and other educational resources to the Odessa College community.

Super Search, the library's centralized search engine, offers easy access locating materials in the library's collection. The following resources are available through the library.

- **Books, Videos, CDs** – 30,000+ books and 4,000+ media holdings
- **Ebooks** – 50,000+
- **Specialized databases** for current students – 60+  
\*Remote access requires OC login
- **Magazines, newspapers, & scholarly journals**
- **Interlibrary loan services** of material from participating Texas libraries
- **Online Tutorials**  
\*Tips for research strategies

- **Computers for online research, homework, and printing**
- **Selected textbooks** for short-term use in the library only
- **Photocopier and FAX service** – There is a charge associated with these services
- **VHS/DVDs** – in library use only
- **Quiet study rooms** for individual and group study  
\*Must check in at the main desk
- **Larger meeting rooms** – for events, educational workshops, and group computer use.  
Reservations required

## TUTORING SERVICES

Odessa College provides tutoring services to assist students in meeting their academic and career goals. The College strives to provide new and updated resources and services at no charge to OC students. Computers provide Internet access, Microsoft Office, and software resources to assist OC students in improving their reading, writing, and mathematical skills.

Appointments are preferred, but walk-ins are accepted as availability allows. Tutoring services are offered in a number of locations on and off campus. For more information or to make an appointment:

- **Student Success Center**, located in the Learning Resources Center, provides support for a variety of academic subjects as well as TSI test prep, AVID, study skills training, workshops, assistance with Blackboard, student email, OC portal, student orientation tours, and more.

<b>Main Number</b>	432-335-6878
<b>Email</b>	<a href="mailto:studentsuccesscenter@odessa.edu">studentsuccesscenter@odessa.edu</a>
<b>Campus Location</b>	1st floor of the Learning Resources Center (LRC)
<b>Website with Additional Help and Information</b>	<a href="http://www.odessa.edu/dept/ssc/">http://www.odessa.edu/dept/ssc/</a>
<b>Live Online Chat Assistance</b>	<a href="#">Click Here</a> Subject to availability. (If no one is currently available, call or email)

- **Math Lab**, located on the second floor of the Wood Math and Science building, provides support for all math-related tutoring

<b>Math Lab Main Number</b>	432-335-6537
<b>Email</b>	<a href="mailto:mymathlab@odessa.edu">mymathlab@odessa.edu</a>
<b>Campus Location</b>	Wood Math and Science building, Room 201
<b>Website with Additional Help and Information</b>	<a href="http://www.odessa.edu/dept/ssc/math_lab.htm">http://www.odessa.edu/dept/ssc/math_lab.htm</a> Provides support for all math related tutoring

- **Synapse Lab**, located on the third floor of the Wood Math and Science building, provides support for all science-related tutoring

<b>Synapse Lab Main Number</b>	Coming soon
<b>Email</b>	<a href="mailto:SynapseLab@odessa.edu">SynapseLab@odessa.edu</a>

<b>Campus Location</b>	Wood Math and Science building, Room 308
<b>Website with Additional Help and Information</b>	<a href="http://www.odessa.edu/dept/biology/tutoring.htm">http://www.odessa.edu/dept/biology/tutoring.htm</a> Provides support for all science related tutoring

- **Writing Center**, located on the first floor of Wilkerson Hall, provides support for all writing-related tutoring

<b>Writing Center Main Number</b>	Coming soon
<b>Email</b>	<a href="mailto:writingcenter@odessa.edu">writingcenter@odessa.edu</a>
<b>Campus Location</b>	Wilkerson Hall, 106
<b>Website with Additional Help and Information</b>	<a href="#">Coming soon</a> Provides support for writing related tutoring

- **Offsite tutoring services** are available in the Rodeo and Agriculture Graham Center located in Gardendale
- **Online tutoring** is available 24/7 through Upswing, which will start Fall II, a web-based, student-friendly service

### Veterans Support

#### How do I contact the office for Veteran's Outreach?

<b>Main Number</b>	432-335-6833
<b>Campus Location</b>	204M (Help Center) in the Student Union Building
<b>Email</b>	Gloria Rangel - <a href="mailto:grangel@odessa.edu">grangel@odessa.edu</a>
<b>Website</b>	To find out more about services provided by the Veteran's Outreach office, please visit: <a href="http://www.odessa.edu/dept/counseling/veterans/index.htm">http://www.odessa.edu/dept/counseling/veterans/index.htm</a>