

Syllabus for AT-26 Automotive Heating and Air Conditioning

Course Information

- Semester and Year: Spring 2026
- Course ID and Section number: AT-26-E9889
- Instructor's name: Anibal Florez
- Day and time of required meetings: Mondays and Wednesday from 1:15pm to 5:35pm
- Location: AT-128 and AT-129
- Number of proctored exams: 5
- Course units: 4

Instructor Contact Information

- Office location: AT-141
- Office hours: By appointment
- Phone number: 707-476-4373
- Email address: Anibal-Florez@redwoods.edu

Required Materials:

- ANSI Z87.1+ safety glasses
- Closed toed shoes
- Course textbook

Catalog Description

A course covering theory and operation of automotive air conditioning and refrigeration systems. Topics will include the refrigeration cycle, evacuation principles, humidity, heat quantity, heat intensity, latent heat, heat transfer, automotive refrigerants, temperature pressure relationship, greenhouse gases, and proper handling and storage of refrigerants. The laboratory portion of the course will focus on the diagnosis and repair of heating and cooling systems, use of refrigerant recycling-reclaiming equipment, use of evacuation equipment, retrofitting, and environmentally sound refrigeration handling techniques. The course is designed in conjunction with National Automotive Technicians Education Foundation (ASE) standards and subsequently will prepare the student for the ASE Air Conditioning and Heating Certification Examination.

Course Student Learning Outcomes

1. Diagnose and repair A/C refrigeration system.
2. Diagnose and repair heating, ventilation, and engine cooling systems.
3. Demonstrate proper refrigerant recovery, recycling, and handling techniques.

Textbook information

Title & Edition: Automotive Heating and Air Conditioning 9thEd.

Author: James Halderman

ISBN-13: 978-0-13-746882-9

Course Calendar

Date	Theory	Lab	Chapters
1-19	No Classes Today For All		
1-21	Policies & Practices	Lab tour and intro	
1-26	ROs & Engine Cooling	ROs & Cooling System	Ch. 1, 8, 9, 10
1-28	Engine Cooling	Cooling System & Heating System	Ch. 1, 8, 9, 10
2-2	Engine Cooling	Cooling System & Heating System	Ch. 1, 8, 9, 10
2-4	Engine Cooling	Cooling System & Heating System	Ch. 1, 8, 9, 10
2-9	Engine Cooling	Cooling System & Heating System	Ch. 1, 8, 9, 10
2-11	Test I <i>Cooling System & Lab Safety</i>		
2-16	No Classes Today For All		
2-18	Electronics review	DVOM application	Ch. 11
2-23	Scan tool PIDs	PIDs for diagnosis	Ch. 12
2-25	Heating Ventilation Diagnosis & Service		Ch. 12
3-2	Electric Vehicle Heating and AC systems		Ch. 13
3-4	Electronic and Non-Electronic Temp Controls		Ch. 7
3-9	Electronic and Non-Electronic Temp Controls		Ch. 7
3-11	Test II <i>Electrical, Heating & Ventilation Systems</i>		
3-16	Spring Break!!		
3-18	Spring Break!!		
3-23	Heat, Temperature and Pressure		Ch. 2
3-25	Heat, Temperature and Pressure		Ch. 2
3-30	No Class Today For Us		
4-1	Refrigerants and Oils		Ch. 5
4-6	Refrigeration Cycle	Manifold Gauge Testing	Ch. 3, 16
4-8	Refrigeration Cycle	Manifold Gauge Testing	Ch. 3, 16
4-13	Field Trip TBD		
4-15	Test III <i>Refrigeration Principles</i>		
4-20	Components and Component Service, RRR		Ch. 4, 6, 14, 15
4-22	Components and Component Service, RRR		Ch. 4, 6, 14, 15
4-27	Components and Component Service		Ch. 4, 6, 14
4-29	Components and Component Service		Ch. 4, 6, 14
5-4	Components and Component Service, RRR		Ch. 4, 6, 14, 15
5-6	Test IV <i>Component Testing & Service</i>		
5-11	Comprehensive Final Exam		

Evaluation and Grading Policy

Theory Portion

Test I	Cooling/Heating Systems	70 points
Test II	Electrical Heating & Ventilation Systems	70 points
Test III	Component Testing & Service	70 points
Test IV	Refrigeration Principles	70 points
Chapter Review Questions		70 points
Final Exam Comprehensive		<u>150 points</u>
Total Lecture Points		500 points

Chapter Quizzes may be given randomly, please have a Scantron available for each class and be prepared to answer chapter questions.

Laboratory Portion

Participation in activities, class, and labs	100 points
Cooling System Testing & Service	100 points
Heating & Ventilation System Testing & Service	100 points
Component Testing & Service	100 points
Refrigeration System Testing & Service	<u>100 points</u>
Total Lab Points	500 points

Extra Credit

Each student may elect independently to read and report on a topic related to A/C & Heating systems from a source other than the course text or the internet. Reputable trade publications, library reference material, magazines, newspaper articles, etc... Are eligible sources. The report must be no less than one page typed and no longer than three pages. You must properly cite your references on a separate page. You may earn up to 50 points per report and you may turn in a maximum of 1 report per semester. (Please check with the instructor as to a suitable topic prior to this assignment)

There are additional Ford and Subaru extra credit options. Ask your instructor.

Prerequisites/corequisites/ recommended preparation

None

Educational Accessibility and Support

College of the Redwoods is committed to providing reasonable accommodations for qualified students

who could benefit from additional educational support and services. You may qualify if you have a physical, mental, sensory, or intellectual condition which causes you to struggle academically, including but not limited to:

- Mental health conditions such as depression, anxiety, PTSD, or bipolar disorder
- Common ailments such as arthritis, asthma, diabetes, autoimmune disorders, and diseases
- Temporary impairments such as a broken bone, recovery from significant surgery, or a pregnancy-related disability
- Neurodevelopmental disorders such as a learning disability, intellectual disability, autism, acquired brain injury, or ADHD
- Vision, hearing, or mobility conditions

Available services include extended test time, quiet testing environments, academic assistance and tutoring through the [LIGHT Center](#), counseling and advising, alternate formats of course materials (e.g., audio books, braille, E-texts), assistive technology, learning disability assessments, approval for personal attendants, interpreters, priority registration, on-campus transportation, adaptive physical education and living skills courses, and more. If you believe you might benefit from disability- or health-related services and accommodations, please contact [Student Accessibility Support Services \(SASS\)](#). If you are unsure whether you qualify, please contact Student Accessibility Support Services (SASS) for a consultation: sass@redwoods.edu.

SASS office locations and phone numbers

Eureka campus

- Phone: 707-476-4280
- Location: Learning Resource Center (Library)

Del Norte campus

- Phone: 707-465-2353
- Location: main building, near the Library

Klamath-Trinity campus

- Phone: 707-476-4280