



## Syllabus for AT-20 Automotive Suspension & Steering

### Course Information

Semester & Year: Spring Semester 2022

Course ID & Section #: AT-20-E3033

Instructor's name: Ernest Shull

Day/Time of required meetings: Monday, Wednesday 01:15PM - 05:35PM

Location: AT-128

Course units: 4

### Instructor Contact Information

Office location: AT-129A

Office hours: Monday, Wednesday 12:00PM – 1:00PM

Phone number: 707-476-4221

Email address: Ernest-Shull@redwoods.edu

### Catalog Description

A course covering the theories and principles related to automotive steering and suspension systems. Topics will include tire and wheel balancing, alignment angles, steering system geometry and supplemental restraint systems (SRS). The laboratory portion of the course will include diagnosis, adjustment, repair, and replacement techniques for automotive and light truck suspension and steering components. Automotive alignment measuring and adjusting procedures will be emphasized. The course is designed in conjunction with Automotive Service Excellence (ASE) Education Foundation standards and subsequently will prepare the student for the ASE Suspension & Steering Certification Examination.

### Course Student Learning Outcomes

1. Diagnose general suspension and steering systems.
2. Diagnose and repair wheel alignment problems.
3. Diagnose and repair wheel and tire problems.

### Prerequisites/co-requisites/ recommended preparation

none

### Accessibility

College of the Redwoods is committed to making reasonable accommodations for qualified students with disabilities. If you have a disability or believe you might benefit from disability-related services and accommodations, please contact your instructor or [Disability Services and Programs for Students](#) (DSPS). Students may make requests for alternative media by contacting DSPS based on their campus location:

- Eureka: 707-476-4280, student services building, 1<sup>st</sup> floor
- Del Norte: 707-465-2324, main building near library
- Klamath-Trinity: 530-625-4821 Ext 103

If you are taking online classes DSPS will email approved accommodations for distance education classes to your instructor. In the case of face-to-face instruction, please present your written accommodation request to your instructor at least one week before the needed accommodation so that necessary arrangements can be made. Last minute arrangements or post-test adjustments usually cannot be accommodated.

## **Student Support**

Good information and clear communication about your needs will help you be successful. Please let your instructor know about any specific challenges or technology limitations that might affect your participation in class. College of the Redwoods wants every student to be successful.

## **Evaluation & Grading Policy**

### Theory Portion

Test I Tires, Wheels, & Bearing, Service 75 points  
Test II Suspension Systems 75 points  
Test III Wheel Alignment 75 points  
Test IV Power Steering & Electronic Systems 75 points  
Chapter Questions, Participation 100 points  
Final Exam Comprehensive 100 points  
Total possible Points 500 points

### Extra Credit

Each student may arrange with instructor to read and report on a topic related to suspension and steering from a source other than the course text or the internet i.e. trade publications, library reference material, magazines, newspaper articles, etc... 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 inform the instructor and agree on a topic before to doing this assignment.

### Laboratory Portion

Participation and Attitude 50 points  
Tires, Wheels, Bearings 100 points  
Shock and Strut Service 50 points  
Suspension System Service 100 points  
Wheel Alignment Service 100 points  
Power Steering Service 100 points  
Total Possible Points 500 points  
Total Course Points 1000

## **Admissions deadlines & enrollment policies**

### Spring 2022 Dates

- *Classes begin: 01/15/22*
- *Last day to add a class: 01/21/22*
- *Martin Luther King, Jr's Birthday (all campuses closed: 01/17/22)*

- *Last day to drop without a W and receive a refund: 01/28/22*
- *Census date (or 20% into class duration): 01/31/22*
- *Last Day to file P/NP (only courses where this is an option) 02/11/22*
- *Lincoln's Birthday (all campuses closed): 02/18/22*
- *Presidents Day (all campuses closed): 02/21/22*
- *Last day to petition to graduate or apply for certificate: 03/03/22*
- *Spring Break (no classes): 03/14/22-03/19/22*
- *Last day for student-initiated W (no refund): 04/01/22*
- *Last day for faculty-initiated W (no refund): 04/01/22*
- *Final examinations: 05/07/22-05/13/22*
- *Semester ends: 05/13/22*
- *Grades available for transcript release: approximately 05/30/22*

## Canvas Information

If using Canvas, include navigation instructions, tech support information, what Canvas is used for, and your expectation for how regularly students should check Canvas for your class.

Log into Canvas at <https://redwoods.instructure.com>

Password is your 8 digit birth date

For tech help, email [its@redwoods.edu](mailto:its@redwoods.edu) or call 707-476-4160

Canvas Help for students: <https://webapps.redwoods.edu/tutorial/>

Canvas online orientation workshop: [Canvas Student Orientation Course \(instructure.com\)](#)

## Community College Student Health and Wellness

Resources, tools, and trainings regarding health, mental health, wellness, basic needs and more designed for California community college students, faculty and staff are available on the California Community Colleges [Health & Wellness website](#).

[Wellness Central](#) is a free online health and wellness resource that is available 24/7 in your space at your pace.

Students seeking to request a counseling appointment for academic advising or general counseling can email [counseling@redwoods.edu](mailto:counseling@redwoods.edu).

## Emergency procedures / Everbridge

College of the Redwoods has implemented an emergency alert system called Everbridge. In the event of an emergency on campus you will receive an alert through your personal email and/or phones.

Registration is not necessary in order to receive emergency alerts. Check to make sure your contact information is up-to-date by logging into WebAdvisor <https://webadvisor.redwoods.edu> and selecting 'Students' then 'Academic Profile' then 'Current Information Update.'

Please contact Public Safety at 707-476-4112 or [security@redwoods.edu](mailto:security@redwoods.edu) if you have any questions. For more information see the [Redwoods Public Safety Page](#).

In an emergency that requires an evacuation of the building anywhere in the District:

- Be aware of all marked exits from your area and building
- Once outside, move to the nearest evacuation point outside your building
- Keep streets and walkways clear for emergency vehicles and personnel

Do not leave campus, unless it has been deemed safe by the campus authorities.

## **Eureka Campus Emergency Procedures**

Please review the [campus emergency map](#) for evacuation sites, including the closest site to this classroom (posted by the exit of each room). For more information on Public Safety go to the [Redwoods Public Safety Page](#). It is the responsibility of College of the Redwoods to protect life and property from the effects of emergencies within its own jurisdiction.

In the event of an emergency:

1. Evaluate the impact the emergency has on your activity/operation and take appropriate action.
2. Dial 911, to notify local agency support such as law enforcement or fire services.
3. Notify Public Safety 707-476-4111 and inform them of the situation, with as much relevant information as possible.
4. Public Safety shall relay threat information, warnings, and alerts through the Everbridge emergency alert system, Public address system, and when possible, updates on the college website, to ensure the school community is notified.
5. Follow established procedures for the specific emergency as outlined in the College of the Redwoods Emergency Procedure Booklet, (evacuation to a safe zone, shelter in place, lockdown, assist others if possible, cooperate with First Responders, etc.).
6. If safe to do so, notify key administrators, departments, and personnel.
7. Do not leave campus, unless it is necessary to preserve life and/or has been deemed safe by the person in command.

## Course Schedule

<i>Day</i>	<i>Theory</i>	<i>Lab</i>	<i>Assigned Reading</i>
1/17	<b>No Class</b>	<b>Martin Luther King Jr. Birthday</b>	
1/19	<i>Intro and Syllabus</i>	<i>Shop Orientation</i>	
1/24	<i>Safety &amp; Tools</i>	<i>Mitchell and Lifting Cars</i>	Ch. 2, Ch 3
1/26	<i>Suspension Basics</i>	<i>Component Identification</i>	
1/31	<i>Wheels &amp; Tires</i>	<i>Wheel &amp; Tire Service</i>	Ch. 5
2/2	<i>TPMS</i>	<i>TPMS Service</i>	Ch. 6
2/7	<i>Tire &amp; Wheel Diagnostic &amp; Service</i>	<i>Diagnostic &amp; Service</i>	Ch. 7
2/9	<i>Wheel Bearing</i>	<i>Wheel Bearing Service</i>	Ch. 8
2/14	<i>Wheel Bearing</i>	<i>Wheel Bearing Service</i>	Ch. 8
2/16	<b>TEST I</b>	<b>Tires, Wheels, &amp; Bearings</b>	
2/21	<b>No Class</b>	<b>Presidents Day</b>	
2/23	<i>Suspension Systems</i>	<i>Identify Suspension Systems</i>	Ch. 9
2/28	<i>Suspension Systems</i>	<i>Shocks and Strut Service</i>	Ch. 10
3/2	<i>Rear Suspension</i>	<i>Rear Suspension Service</i>	Ch. 10
3/7	<i>Front Suspension</i>	<i>Front Suspension Service</i>	Ch. 10
3/9	<i>Front Suspension</i>	<i>Front Suspension Service</i>	
3/14	<b>No Class</b>	<b>Spring Break</b>	
3/16	<b>No Class</b>	<b>Spring Break</b>	
3/21	<b>Test II</b>	<b>Suspension Systems</b>	
3/23	<i>Wheel Alignment</i>	<i>Pre-Inspections</i>	Ch. 13
3/28	<i>Wheel Alignment</i>	<i>Demo Alignment</i>	Ch. 13
3/30	<i>Wheel Alignment</i>	<i>Wheel Alignment Service</i>	Ch. 14
4/4	<i>Wheel Alignment</i>	<i>Wheel Alignment Service</i>	Ch.14
4/6	<i>Wheel Alignment</i>	<i>Wheel Alignment Service</i>	
4/11	<i>Wheel Alignment</i>	<i>Wheel Alignment Service</i>	
4/13	<b>Test III</b>	<b>Wheel Alignment</b>	
4/18	<i>Steering Systems</i>	<i>Power Steering Hoses</i>	Ch. 11
4/20	<i>Steering Systems</i>	<i>Rack &amp; Pinion Service</i>	Ch. 12
4/25	<i>Steering Gear</i>	<i>Steering Gear Service</i>	Ch. 12
4/27	<i>Power Steering Pumps</i>	<i>PS Pumps</i>	
5/2	<i>ESC Systems</i>	<i>ESC Service</i>	
5/4	<b>TEST IV</b>	<b>Power Steering &amp; ESC</b>	
5/9	<b>Final Exam</b>	<b>8:30AM – 10:30AM</b>	