

# AT-30 Auto Trans/Transaxle

## Course Information

- Semester and Year: Spring 2026
- Course ID and Section number: AT-30-E9890
- Instructor's name: Ernest Shull
- Day and time of required meetings: Mondays and Wednesdays 8:15 AM TO 12:35 PM
- Location: AT-128
- Course units: 4

## Instructor Contact Information

- Office location: AT-122
- Office hours: Open Door Policy
- Phone number: 707-476-4221
- Email address: [ernest-shull@redwoods.edu](mailto:ernest-shull@redwoods.edu)

## Required Materials:

- Safety Glasses
- Appropriate Shop Clothes

## Catalog Description

- A course covering theory and principles related to both hydraulic and electronically actuated automatic transmissions/transaxles. Topics will include positive and variable displacement pumps, torque converters, torque converter clutches, hydraulic valves, electronic shift solenoids, governors, and common compound planetary gear arrangements. The laboratory portion of the course will focus on diagnostic and overhaul procedures, in-vehicle testing, and bench testing of various components. The course is designed in conjunction with Automotive Service Excellence (ASE) standards and subsequently will prepare the student for the ASE Automatic Transmission Certification Examination.

## Course Student Learning Outcomes

- Perform maintenance and adjustments on transmissions and transaxles.
- Diagnose and repair in-vehicle transmission and transaxle problems.
- Diagnose and repair off-vehicle transmission and transaxle problems.

## Evaluation and Grading Policy

### Course Evaluation

#### Course Points

All labs contribute 50% of the final grade. Each lab is typically worth 20 points, with 10 points for participation and 10 points for completion of Repair Orders. Repair Orders must be completed neatly, accurately, and thoroughly. Some labs may be worth additional points if they are conducted over multiple class sessions.

Tests and homework make up the remaining 50% of the final grade, with 10% allocated to homework and 40% to tests. Homework is generally completed as a group following lecture; however, due to time constraints, some assignments may need to be completed outside of class.

Final grades are based primarily on scores recorded in Canvas. Attendance, professionalism, and attitude in the shop will also be considered when determining the final posted grade. Students are encouraged to contact the instructor with any questions regarding grading.

#### Extra Credit

Each student may independently choose to complete one extra credit assignment per semester. This assignment consists of a written report on an automatic transmission–related topic from a source other than the course textbook (e.g., recognized trade publications, library reference materials, magazines, or newspaper articles). Reports must be between one and three typed pages and include properly cited references on a separate page. Students may earn up to 50 extra credit points. The topic must be approved by the instructor prior to beginning the assignment.

## 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](mailto: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
- Course Schedule

<i>Date</i>	<i>Assigned Reading</i>	<i>Theory</i>	<i>Lab Assignment</i>
1/21	Chapters 2 & 3	Shop Safety/Tools	Tour/Haz-Mat
1/26	Chapter 6	Automatic Trans Fundamentals	Transmission I.D.
1/28	Chapter 7	Transmission Components	Transmission Inspections
2/2	Chapter 8	Hydraulic Fundamentals	Transmission Pressure Tests
2/4	Chapter 9	Torque Converters	Filter Change/Flushes
2/9	Chapter 10/11	Electronic & Hydraulic Trans	Electrical Diagnostics
2/11		<b>Test 1</b>	
2/16	<b>NO CLASS</b>	<b>HOLIDAY</b>	
2/18	Chapter 13	Transmission Removal	R&R Transaxle
2/23	Chapter 19	Transmission Reinstallation	R&R Transaxle
2/25		LAB DAY	R&R Transaxle
3/2		LAB DAY	R&R Transaxle
3/4	Chapter 12	In Vehicle Transmission Repairs	Seal Service
3/9	Chapter 20	Dual Clutch Transmissions	Power Flow Diagnostics

3/11		<i>Scan Tool Usage</i>	<i>Scan Tools</i>
3/16	<b>No Class</b>	<b><i>SPRING BREAK</i></b>	
3/18	<b>No Class</b>	<b><i>SPRING BREAK</i></b>	
3/23	<i>Chapter 22</i>	<i>Hybrid Vehicles</i>	<i>Hybrids</i>
3/25	<i>Chapter 23</i>	<i>Ford Transmissions</i>	<i>4R70W</i>
3/30	<i>Chapter 23</i>	<i>Ford Transmissions</i>	<i>4R70W</i>
4/1	<i>Chapter 23</i>	<i>Planetary Gearsets</i>	<i>4R70W</i>
4/6		<b><i>Test 2</i></b>	
4/8	<i>Chapter 14</i>	<i>Transmission Disassembly</i>	<i>4T65E Teardown</i>
4/13	<i>Chapter 14</i>	<i>Transmission Disassembly</i>	<i>4T65E Teardown</i>
4/15	<i>Chapter 16</i>	<i>Gear Train Rebuilding</i>	<i>4T65E Gear Train</i>
4/20		<i>Hydraulic System Rebuilding</i>	<i>4T65E Clutches</i>
4/22	<i>Chapter 15</i>	<i>Hydraulic System Rebuilding</i>	<i>4T65E Clutches</i>
4/27	<i>Chapter 17</i>	<b><i>Test 3, Valve Body &amp; Electric</i></b>	<i>4T65E Valve Body</i>
4/29	<i>Chapter 27</i>	<i>Presentations</i>	<i>Presentations</i>

5/4 Chapter 24 4T65E Speed Rally Identify Components

5/6 Chapter 25 4T65E Speed Rally Identify Components

5/12 **FINAL EXAM ONLINE VIA CANVAS**