 Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Pd \_\_\_\_\_

***Mr. Shaw***

***Automotive Technology***

***MLR 1***

*(NHS Automotive is a NATEF Certified Program taught by an ASE Certified Instructor)*

Intro Auto must be taken and passed with a C+ minimum and no U’s before taking this class! This is a 1 yearlong course. MLR 1 (Maintenance and Light Repair 1) must be taken and passed at a C+ level to be eligible to take MLR 2 which meets for 2 periods of your schedule. Teacher approval is needed to advance. It is desirable to become employed in an entry level automotive field during the MLR classes. This course will focus on Automotive Brakes and Automotive Suspension and Steering. There will be other topics included to round out a student’s automotive understanding.

**Topics Covered –**

Safety – Must pass the safety test with a 100%!!! We will be using the **S/P2** curricula and tests.

Vehicle Service, Brakes, Suspension and Steering, Electrical/Electronics – Majority of class – also Manual Drive Train and Axles, Engine Performance, Automatic Transmission filter service

**Grading –**

30% Written Assignments 30% Shop Work 30% Tests, Quizzes, COMPREHENSIVE FINAL *(End of Level Test)* 10% Notebook –

|  |  |  |
| --- | --- | --- |
| 100-95% - A | 86-83% - B | 76-73% - C |
| 94-90% - A- | 82-80 - B- | 72-70% - C- |
| 89-87% - B+ | 79-77 - C+ | 69-60% - D |

**FEES –**

-Shop Fees - **$10** per each semester -Safety Glasses **- $5** Must be clear lens – not tinted (may use your own)

* Concurrent Enrollment – ***PAID DIRECTLY TO WSU*** – Nonrefundable $30.00 admission fee (One time only for any Concurrent Enrollment Courses from WSU) $5 per Credit Hour (Brakes is 2 credit hours, $10.00 tuition fee and Suspension and Steering is 2 credit hours, $10.00 tuition fee) ***THIS IS A VERY GOOD DEAL!!!☺***

**Student Requirements –**

1. **Students are responsible for making sure they have a vehicle for shop projects** - *(small groups of students per vehicle)*
2. **Come prepared for class** – paper, pencil/pen, and Text *(EVERY DAY!)*
3. **Safety Glasses are REQUIRED in the shop.**
4. Be prepared for shop days *(Vehicle arranged for each student group, Fluid, Parts needed, Safety Glasses, possible protective clothing – it can get messy! ☺ )*
5. Show up and be ready to learn! *Learning is WORK and is FUN and WORTHWHILE!*

**Late Work –**

***Work from excused absences needs to be turned in the next class after it was received.*** Students will be able to receive credit for late work. Late work will be accepted at a 50% reduction if no more than 1 week late, if later than 1 week no credit will be given. *(HINTS – Talk to teacher when it will not disrupt class or others learning – If there are special circumstance, talk to instructor – an appointment may be needed!)*

**Class Rules –**

1. Be in seat and prepared when the bell rings.
2. **Cell Phones**, Attendance, Attire – District policies will be used.
3. Be Respectful – Other Students, Personal Property, School Property, *and especially, the teacher! ☺*
4. Do your own work.
5. Everyone cleans up – Both classroom and shop.

**Shop Rules –**

1. Safety Glasses must be worn whenever work is being done
2. DSD and NHS Safety must be passed, signed, and turned in
3. ***Be safe, students who aren’t safe can’t go in the shop.***
4. Everybody helps with cleanup!
5. Each car coming in must have the DSD Release form filled out and signed.
6. No work is to be done without Instructor Permission
7. Only use equipment that you have been trained in – this includes even touching it!
8. Respect all vehicles in the shop – allow things to be **“safe”** in the shop!
9. When a vehicle is being moved into or in the shop –

* Driver must have a current **driver’s license**
* Vehicle must be in **control** at all times – from parking lot to shop – no nuisance driving – spinning wheels, loud exhaust, loud sound system etc.
* **One person** only in the vehicle
* Drivers **Window Open**
* All noisy **things turned off** – radio, fans (you need to be able to hear if there are problems)

*This teacher reserves the right to use professional discretion on an individual basis to accommodate individual circumstances.*

*Modifications may be made as needed…*



Syllabus

**WSU Department Name**

Automotive Service Technology

**WSU Course Number & Listing**

AUSV 1021: Brake Systems Part 1 (2 Credit Hr.)

**High School**: Northridge High School  
WSU Concurrent Adjunct Instructor: Blaine Shaw

High School Course Name: MLR 1

**(Attention**: Contact the College or University you wish to attend to make sure that these Concurrent Enrollment courses will meet your goals for fulfilling General Education requirements or will count toward your chosen major).

**Concurrent Adjunct Instructor’s Office Hours**

10:55-12:15

**Concurrent Adjunct Instructor’s phone and email**

(801) 402-8554

[bshaw@dsdmail.net](mailto:bshaw@dsdmail.net)

**Prerequisite High School Courses if any**

Intro Auto

**WSU Course Description:**

This course covers the theory of operation, diagnosis, and repair of braking systems. This is part 1 of a two-part course. Each part is two credit hours for a total of four credit hours.

**Prerequisite**

1. The WSU Shop Safety Module [www.weber.edu/automotive](http://www.weber.edu/automotive)
2. Completion of the two required S/P2 certifications [www.sp2.org](http://www.sp2.org/)
3. AUSV 1000 – Introduction to Automotive Service

**Communication Policy**:

* When necessary, the professor will contact the students through text messaging or their WSU wildcat email address (unless you provide a different preferred email address in your online preferences).  Students should check their email a few times per week; this is especially important on the weekends and before driving to class.
* Text messaging, phone calls, and surfing the Internet during class is unprofessional, distracting, and is prohibited.  Many employers do not allow cell phone use during normal work hours.  Please silence all cell phones and audible “silent” vibrations.  Communication with the instructor via phone, email, and text messaging is allowed until 6:00 p.m. (please include your name). Unwanted phone calls and/or text messaging is considered harassment and is against the law.

**Behavioral Expectations and skills**

According to the WSU Automotive Department National Advisory Committee recommendations, all students are expected to have the following behavioral traits:

1. Integrity - Behaves with honor and dignity; does the right thing.
2. Reliability - Sticks with it to get the job done
3. Trustworthy and Honest - Holds self and others to highest standards
4. Passion for Excellence
5. Initiative - Thinks outside the box
6. Innovation and Technical Excellence - Discovers better ideas and applies expertise
7. Commitment to Quality
8. Courage - Fights to turn dreams into realities
9. Community Commitment - Acts to enhance the community
10. Conduct – Follow the WSU student code of conduct:

**All students are expected to have the following skills:**

1. Be self-motivated enough to be able to plan, organize and prioritize time and workload in order to accomplish tasks and meet deadlines.
2. Develop and safeguard professional relationships; demonstrate interpersonal networking skills
3. Demonstrate computer information literacy (including: email, typing, Internet navigation, Microsoft Office Professional (Access, Excel, Word, PowerPoint))
4. Demonstrate analytical skills
5. Work with or contribute to a work group or team to complete assigned task(s)
6. Communicate in professional written form
7. Compose and produce technical reports, documents and related material present technical information in a professional manner to a variety of audiences
8. Monitor or track information or data
9. Evaluate information against a set of standards
10. Weigh the relative costs and benefits of a potential action and make a decision; acumen (good judgment).

**Class Time and Location:**

* Room A116

**Required Materials:**

* Text Book – Automotive Technology 4th edition
* Safety goggles/glasses.  These must be worn in the shop at all times.

**Learning Outcomes (NATEF Tasks):**

The Automotive Technology program at Weber State University is accredited by the [National Automotive Technicians Education Foundation](http://www.natef.org/) (NATEF).  To obtain NATEF accreditation, certain [tasks](http://www.natef.org/program_standards/auto/task_list.cfm) must be taught or performed in each of the eight Automotive Service Excellence ([ASE](http://www.ase.com/)) areas.

The course covers the NATEF Maintenance and Light Repair (MLR) tasks from area A5 – Brake Systems. The remainder of NATEF Master Automotive Service Technician (MAST) tasks will be covered in the part 2 class: AUSV 1023 at Weber State University.

**V. BRAKES (MLR Standards)**

**A. General: Brake Systems Diagnosis**

1. Research applicable vehicle and service information, vehicle service history, service precautions, and technical service bulletins.
2. Describe procedure for performing a road test to check brake system operation; including an anti-lock brake system (ABS).
3. Install wheel and torque lug nuts.

**B. Hydraulic System Diagnosis and Repair**

1. Measure brake pedal height, travel, and free play (as applicable); determine necessary action.
2. Check master cylinder for internal/external leaks and proper operation; determine necessary action.
3. Inspect brake lines, flexible hoses, and fittings for leaks, dents, kinks, rust, cracks, bulging, and wear; check for loose fittings and supports; determine necessary action.
4. Select, handle, store, and fill brake fluids to proper level.
5. Identify components of brake warning light system.
6. Bleed and/or flush brake system.
7. Test brake fluid for contamination.

**C. Drum Brake Diagnosis and Repair**

1. Remove, clean, inspect, and measure brake drum diameter; determine necessary action.
2. Refinish brake drum and measure final drum diameter; compare with specifications.
3. Remove, clean, and inspect brake shoes, springs, pins, clips, levers, adjusters/self-adjusters, other related brake hardware, and backing support plates; lubricate and reassemble.
4. Inspect wheel cylinders for leaks and proper operation; remove and replace as needed.
5. Pre-adjust brake shoes and parking brake; install brake drums or drum/hub assemblies and wheel bearings; perform final checks and adjustments.

**D. Disc Brake Diagnosis and Repair**

1. Remove and clean caliper assembly; inspect for leaks and damage/wear to caliper housing; determine necessary action.
2. Clean and inspect caliper mounting and slides/pins for proper operation, wear, and damage; determine necessary action.
3. Remove, inspect, and replace pads and retaining hardware; determine necessary action.
4. Lubricate and reinstall caliper, pads, and related hardware; seat pads and inspect for leaks.
5. Clean and inspect rotor; measure rotor thickness, thickness variation, and lateral runout; determine necessary action.
6. Remove and reinstall rotor.
7. Refinish rotor on vehicle; measure final rotor thickness and compare with specifications.
8. Refinish rotor off vehicle; measure final rotor thickness and compare with specifications.
9. Retract and re-adjust caliper piston on an integrated parking brake system.
10. Check brake pad wear indicator; determine necessary action.
11. Describe importance of operating vehicle to burnish/break-in replacement brake pads according to manufacturer’s recommendations.

**E. Power-Assist Units Diagnosis and Repair**

1. Check brake pedal travel with, and without, engine running to verify proper power booster operation.
2. Check vacuum supply (manifold or auxiliary pump) to vacuum-type power booster.

**F. Miscellaneous (Wheel Bearings, Parking Brakes, Electrical, Etc.) Diagnosis and Repair**

1. Remove, clean, inspect, repack, and install wheel bearings; replace seals; install hub and adjust bearings.
2. Check parking brake cables and components for wear, binding, and corrosion; clean, lubricate, adjust or replace as needed.
3. Check parking brake operation and parking brake indicator light system operation; determine necessary action.
4. Check operation of brake stop light system.
5. Replace wheel bearing and race.
6. Inspect and replace wheel studs.

**G. Electronic Brake, Traction and Stability Control Systems Diagnosis and Repair**

1. Identify and inspect electronic brake control system components; determine necessary action.
2. Describe the operation of a regenerative braking system.
3. Diagnose poor stopping, wheel lock-up, abnormal pedal feel, unwanted application, and noise concerns associated with the electronic brake control system; determine necessary action.

**Safety Information:**

The Weber State University (WSU) Automotive Department has made student safety a top priority.  WSU has made every effort to comply with personal and environmental safety practices associated with clothing; eye protection; hand tools; power equipment; proper ventilation; and the handling, storage, and disposal of chemicals/materials in accordance with local, state, and federal safety and environmental regulations.

Every automotive student is required to complete a shop safety module and two certifications from the Safety and Pollution Prevention (S/P2) website.  These requirements insure that our students have been exposed to local, state, and federal safety and environmental regulations.

**Grading Criteria:**

The following criteria will determine your grade

* Compliance with safety regulations including wearing eye protection during lab assignments (5%)
* Lab assignments and worksheets (40%)
* Completion of required web-based Training (15%)
* Class participation and reading assignments (10%)
* Chapter quizzes (10%)
* Hands-on final exam (20%)

Letter grades are determined by the percentage of possible points accumulated.

* A = 95% - 100%
* A- = 90% - 94%
* B+ = 87% - 89%
* B = 84% - 86%
* B- = 77% - 83%
* C+ = 74% - 76%
* C = 70% - 73%
* C- = 67% - 69% (You must have a grade of C or higher to count towards graduation)
* D+ = 64% - 66%
* D = 60% - 63%
* D- = 57% - 59%
* E = Below 57%

**Policies:**

1. Safety glasses/goggles must be worn in the shop at all times.
2. While working in the shop, proper attire must be worn.  This applies, but is not limited, to:
3. Uniforms/clothing
4. Shoes
5. Jewelry
6. Proper hair restraint
7. A student WSU ID card is required to check out tools from the tool room.
8. Respect:
   1. Customer’s vehicles by using seat and fender covers
   2. Other students and their learning experience
   3. WSU tools and vehicles by identifying problems with tools and vehicles when found.
   4. Class is not over until all tools are put away and everything is clean and organized.
9. Attendance is required every day.  Each day’s topics build on the previous day’s topics.  If you must miss a day of class your grade will suffer. Please make arrangements to obtain the reading assignment and homework from the Professor of you must miss class.
10. Late work will NOT be accepted unless arrangements are made ahead of time with the Professor.  The maximum credit allowed for late work is 50%.
11. All of your assignments must be completed and submitted online by their posted dates at 11:59 p.m. The use of cell phones during class is prohibited except in an emergency.  Text messaging is always prohibited.
12. All of your assignments must be completed on the day assigned.  Class will follow the sequence listed in the schedule.
13. Unless you are assigned to work in groups for lab work, you must do your own work.  Collaboration with other students is not allowed.
14. Dishonesty will not be tolerated and will result in a score of zero for the assignment, quiz, or exam.

**Recommendations to get the most from this course:**

1. Be early or on time.  Class will begin without you.
2. Ask questions to clarify points that you do not understand.
3. Follow directions as they are given to you.

**Services for Students with Disabilities:**

"Any student requiring accommodations or services due to a disability must contact Services for Students with Disabilities (SSD) in room 181 of the Student Services Center. SSD can also arrange to provide course materials (including the syllabus) in alternative formats if necessary."

For more information about the SSD contact them at 801-626-6413, [ssd@weber.edu](mailto:ssd@weber.edu), or <http://departments.weber.edu/ssd/>.

**WSU Course Evaluation:**  
As a concurrent student, you are given the privilege of evaluating this course. This is an anonymous evaluation which allows you an opportunity to express your opinions of the course and the instructor.

**WSU Student Code of Conduct**

Download the WSU Student Code of Conduct at:

[www.weber.edu/concurrent/students/CodeOfConduct.aspx](http://www.weber.edu/concurrent/students/CodeOfConduct.aspx)

Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Pd \_\_\_\_\_

***Mr. Shaw***

***Automotive Technology***

***MLR 1***

*(NHS Automotive is a NATEF Certified Program taught by an ASE Certified Instructor)*

**I have read this course disclosure and agree with its contents.**

Student Signature \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Parent/Guardian:

Name PRINTED \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Phone Number \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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Signature \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date \_\_\_\_\_\_\_\_\_\_\_\_