

# MONTGOMERY COLLEGE

Fire Science Program

## SYLLABUS

### FIRE102: Fire Behavior and Combustion (3 credits)

Fall 2018

#### I. Instructor Information

Lead Instructor: Mark Bird  
Dept. Office: Room 245 PE Center  
Phone Number: Cell – 301-748-9839  
Email: [mark.bird@comcast.net](mailto:mark.bird@comcast.net)  
Office Hrs: by appointment

Fire Science Program Coordinator: Professor Kathy Dayton  
Department Phone: 240-567-7580

Montgomery College website: [www.montgomerycollege.edu](http://www.montgomerycollege.edu)  
Program Website: [www.montgomerycollege.edu/firescience](http://www.montgomerycollege.edu/firescience)

#### II. General Course Information

Catalog Description: Explores the theories and fundamentals of how and why fires start, spread, and how they are controlled. Assessment levels: ENGL101/101A, READ120. 3 semester hours.

#### III. Specific Outcomes

By the end of the course, the student will be able to:

- Identify physical properties of the three states of matter.
- Categorize the components of fire.
- Recall the physical and chemical properties of fire.
- Describe and apply the process of burning.
- Define and use basic terms and concepts associated with the chemistry and dynamics of fire.
- Describe the dynamics of fire.
- Discuss various materials and their relationship to fires as fuel.
- Demonstrate knowledge of the characteristics of water as a fire suppression agent.
- Articulate other suppression agents and strategies.
- Compare other methods and techniques of fire extinguishments.

#### IV. Texts and Supplies

Required text: Fire Behavior and Combustion Processes, 1st ed., Delmar Cengage Learning, 2008, ISBN: 978-1401880163 (Available at Rockville bookstore or Online)

Required: Internet access for emails and coursework. Montgomery College computer labs are available. This course will utilize a Blackboard supplemental site available through MyMC.

V. **Grading**

A. **Requirements**

This is a comprehensive course; in order for the student to pass the course, regardless of the student's grade average in the course, the **student must take the final exam** and have no more than one absence. As this is a required course in the Fire and Emergency Services Management program, a course grade of C or higher is required for transfer.

B. **Course Grading**

Introduction Essay (Discussion Posting) - 25 points

Attendance/Class Discussion – 150 points

Module Assignments – 750 points

Final Exam - 200 points

Research Papers - 200 points

**Introduction Essay (25 points)**

Introduce yourself to the class on the Discussion Board on BlackBoard. Instructions are in the assignment.

**Attendance/Class Discussion (150 points)**

Class discussion and on-time attendance is required. All lecture material is essential, and a major portion of this course involves student participation in discussions. Consequently, a significant portion of the final grade is based on attendance and active participation in all class activities. **Students can only miss one class; however, because of the intensity and speed of this course it is strongly suggested that you attend all classes.**

Attendance will be taken at the beginning of each class period. It is the student's responsibility to see the instructor immediately following class if they arrived after the attendance check to have their attendance record corrected.

**Module Assignments (750 points)**

There are ten (10) modules that follow the chapters in the textbook. Assignments consist of short-answer questions. Please check the "Assessments" link to view the due dates for each. Late assignments are not accepted and there are no make-ups allowed.

**Research Paper 1 (100 points)**

Investigate a hazardous material. Hazardous materials are those which present some sort of unique threat to life or health, have a high flammability, react violently with water, etc. They typically have placarding requirements for transportation. Write a 2-3 page report on the substance. Please cover the trade and generic names of the material as well as a discussion of the hazards it poses and the steps needed to mitigate those hazards. Where in the local area might this substance be found? Follow Writing Guidelines (and be sure to cite all sources).

Research Paper 2 (100 points)

Consider an atypical fire scenario. In other words: not a house, apartment, office building, car, etc. Ideas would include: a vessel or space station in orbit (ISS, for example), a steel ship (Navy or Coast Guard vessels), a submarine or deep sea habitat, the Apollo 1 capsule, etc. If you have another idea, check with the instructor. Identify the characteristics of fire behavior that you would expect under these atypical conditions. What special hazards would you anticipate? What methods of firefighting would be reasonable to employ? What effects do you predict with these firefighting methods? In what ways does this situation differ from a typical (e.g., single family home or apartment) similar fire situation? Write a 2 – 3 page paper; diagrams and charts are welcome if they help to illustrate your point. Follow Writing Guidelines (and be sure to cite all sources).

Final Exam (200 points)

Exam is comprehensive and will consist of multiple choice, short answer and essay questions.

C. Standards

Final grades will be based on percentage of points scored:

90% - 100%	A
80% - 89.99%	B
70% - 79.99%	C
60% - 69.99%	D
Up to 59.99%	F

D. Make-up Policy

If a student knows that he/she will need to miss a test ahead of time, the student must notify the Instructor **at least one week before the scheduled exam**; otherwise no make up test will be given. If an emergency occurs, you must contact the Instructor within 24 hours of the exam (via phone or email). You must have documentation for your absence (car repair bill, police report, proof of major illness, etc). No make up tests will be given without the proper documentation or approval of instructor. In addition, please see attendance requirement, as it still applies to test dates.

E. Late Policy

Students are expected to arrive for class on time. Arriving late is distracting to other students and the instructor. Three (3) late arrivals, as documented by the instructor, will constitute (1) full absence and will apply to attendance policy.

F. Audit Policy

Students auditing the class are exempted from tests. However, students are required to attend all classes and participate in the class discussions.

## VI. Classroom policies

### A. Attendance

Attendance will be taken at the beginning of each class. Students are expected to attend class on time. If you have excessive absences (more than **ONE**), as defined in the Student Handbook and College Catalog, you may be dropped from the course. *Withdrawal from the course is the responsibility of the student.* In addition, this class is designed to be interactive and you must be willing and able to express your views on the topics discussed in class and willing to interact with other students in a close environment.

### B. Academic Honesty

All students are expected to achieve their goals with academic honesty. Cheating, plagiarism, and/or other forms of academic dishonesty or misconduct, examples of which are to be found in the Student Code of Conduct in the Student Handbook, are not tolerated. Students caught violating the code of conduct will receive a grade of zero for that assignment/test. A second incident will result in a failing grade for the class and referral to the Dean of Students.

The Student Code of Conduct is a document that outlines the principles, policies and procedures that govern student life and encourages responsibility and respect for the rights and viewpoints of others. The Student Code of Conduct describes acceptable standards of student behavior and academic integrity, disciplinary procedures, and possible sanctions when the Code of Conduct is not followed. Academic dishonesty can result in an "F" on the assignment or test, or "F" in the course. Sanctions for non-academic misconduct and more serious academic dishonesty can include probation, suspension, or dismissal.

Student disciplinary records are maintained in the Office of the Dean of Student Development and are kept for five years. They will be disclosed only in accordance with applicable federal and state law.

For this course, students are to complete all online assignments individually – no assistance from or collaboration with any other person.

### C. Classroom Conduct

- Please refer to the Student Handbook. The instructor reserves the right to remove any student who is disruptive.
- As a courtesy to others, please turn off/mute cell phones and electronic devices prior to class

All infractions will be reported to the Department Chair and the Dean of Students so that an appropriate response can be made. In short, no student will be permitted to disrupt the educational experience for the rest of the class. Academic freedom refers to the right of the individual to express an opinion that may or may not be held by the majority. However, it is each student's responsibility to express opinions respectfully and without infringing on the safety or rights of others.

D. Support Services

Any student who may need an accommodation due to a disability, please make an appointment to see the instructor during office hours. A letter from Disability Support Services (122CB) authorizing your accommodations will be needed. Any student who may need assistance in the event of an emergency evacuation must identify to the Disability Support Services Office; guidelines for emergency evacuations for individuals with disabilities are found at:

[www.montgomerycollege.edu/Departments/dispsvc/evacprocedures.htm](http://www.montgomerycollege.edu/Departments/dispsvc/evacprocedures.htm)

E. Cancellation of Classes/Delay of Classes

If classes are canceled due to inclement weather, you are still responsible for the material from the textbook, and should continue to follow the schedule provided in the syllabus for reference. If there are any foreseeable changes in the schedule, it will be announced in class or on Blackboard. Note: Montgomery College does NOT follow Montgomery County Public Schools closures.

*If the college opens late:*

- ◆ *If a class can meet for 50% or more of its regularly scheduled meeting time **OR** if the class can meet for 50 minutes or more, it will meet.*
- ◆ Montgomery College will always operate on its regular schedule unless otherwise announced. Depending on the nature of the incident, notifications of emergencies and changes to the College's operational status will be communicated through one or more communication methods including the College's web page <http://montgomerycollege.edu>.
- ◆ For the most up-to-date information regarding College openings, closings, or emergencies, all students are encouraged to sign up for email and text alerts via Montgomery College ALERT. Registration information is available at [www.montgomerycollege.edu/emergency](http://www.montgomerycollege.edu/emergency).

F. Tobacco Use Policy

Montgomery College has a Smoke and Tobacco Free Policy which **prohibits smoking or the use of other tobacco (including 'vape' products)** on any of its campuses or other property. Students who smoke or use tobacco products will be considered in violation of the student conduct code and their behavior will be reported to the Dean of Student Development's office for the appropriate disciplinary action including probation, suspension, or dismissal. If you have any questions about this new policy, please contact the Vice President and Provost's Office, the Office of the Dean of Student Development or the Campus Security Office."

G. Incomplete Grades

A grade of I (incomplete) may be assigned only upon request of the student and agreement of the course instructor.

To receive an "I" (incomplete) grade, students must obtain a contract form from the instructor and negotiate a formal agreement with the course instructor specifying the work done and the remaining work needed to complete the course and earn a grade.

Normally, the use of an "I" grade is limited to bona fide emergency situations that occur at the end of a semester and that prevent students from completing all course requirements in a timely fashion to meet the final grade submission requirements of the Office of Admissions and Records. It is the responsibility of the instructor to specify the exact work to be completed to meet course requirements. The instructor and the student should hold a reasonable expectation that course requirements can be completed within the four weeks following the beginning of the next full semester. If a final grade has not been submitted after four weeks into the next semester, the "I" automatically reverts to a failing grade (F).

## VII. Additional Information

It is expected that the student will:

- ◆ be responsible for obtaining any information and class notes from another classmate if he/she missed class
- ◆ have completed the assigned readings **before** each class session
- ◆ be prepared to discuss the assigned readings and participate in the discussion
- ◆ be respectful of the instructor and other students
- ◆ arrive on-time
- ◆ be open to new ideas and concepts
- ◆ do his/her best in this class

### Student Email

All Montgomery College students have been assigned an email address. Students can check their email through MyMC. The format for your email address is: [MyMCID@montgomerycollege.edu](mailto:MyMCID@montgomerycollege.edu). Your email password will be the same as your My MC password. It can be changed within My MC. Your email account will be an official means of communication between you and Montgomery College. It is recommended that you check this account several times a week for official communication from the college.

### Contacting Your Instructor

Preferred communication is through email (listed at top of syllabus). Please ensure that you have a working email address and in the "Subject" line you reference FIRE102.

### **Blackboard - Technical Issues:**

If during the course you experience a technological problem with Blackboard, you need to follow the procedures below. Following these procedures **may** allow you to re-submit an online assessment or be granted an extension to a course deadline (if necessary) depending on the circumstances and approval of your professor.

1. Call the IT Service Desk at 240-567-7222 to report your problem.
2. Write down the work order number received from the IT Service Desk.
3. Send an email to your professor identifying: the date and time of the phone call, the work order number, the nature of the problem, the steps to resolution suggested by Blackboard and the outcome of the phone call. This email must be sent within 1 hour of contacting the IT Service Desk.

\*If in doubt, contact the IT Service Desk if you are experiencing a problem. Students who do not follow the instructions above will not be able to resubmit work due to technical errors.

### **Important Student Information Link**

In addition to course requirements and objectives that are in this syllabus, Montgomery College has information on its web site (see link below) to assist you in having a successful experience both inside and outside of the classroom. It is important that you read and understand this information. The link below provides information and other resources to areas that pertain to the following: student behavior (student code of conduct), student e-mail, the tobacco free policy, withdraw and refund dates, disability support services, veteran services, how to access information on delayed openings and closings, how to register for the Montgomery College alert System, and finally, how closings and delays can impact your classes. If you have any questions please bring them to your professor. As rules and regulations change they will be updated and you will be able to access them through the link. If any student would like a written copy of these policies and procedures, the professor would be happy to provide them. **By registering for this class and staying in this class, you are indicating that you acknowledge and accept these policies.**

<http://cms.montgomerycollege.edu/mcsyllabus/>

# FIRE102 – Fire Behavior and Combustion

## Course Schedule

Fall 2018

<b>Class Date</b>	<b>Topic</b>	<b>Assignment</b>	<b>Due Date (By 2355)</b>
9/10	Introductions Administrative Details Module 1 – American Fire Service: The Past, Present and Future	Introduction Essay Fire Behavior and Combustion Processes (FBCP) - Chapter 1 Articles Module 1 Assignment	9/16
9/17	Module 2 - Fire Chemistry	FBCP - Chapter 2 Articles Module 2 Assignment	9/23
9/24	Module 3 – Combustion Processes	FBCP - Chapter 3 Articles Module 3 Assignment	9/30
10/1	Module 4 - Extinguishing Agents	FBCP - Chapter 4 Articles Module 4 Assignment	10/7
10/8	Module 5 - Foundations of Firefighting Tactics and Strategies	FBCP - Chapter 5 Articles Module 5 Assignment	10/14
10/15	MIDTERM Module 6 – Hazardous Materials and Warning Systems	FBCP - Chapter 10 Articles Module 6 Assignment	10/21
10/22	Module 6 – Hazardous Materials and Warning Systems	Research Paper #1	10/28
10/29	Module 7 – Special Concerns in Firefighting Review Strategy and Tactics	FBCP - Chapter 6 Articles	
11/5	Module 7 – Special Concerns in Firefighting	Module 7 Assignment	11/12
11/12	Module 8 – High-Rise Building Fires	FBCP - Chapter 7 Articles Module 8 Assignment	11/18
11/19	Module 9 – Wild Land Fires	FBCP - Chapter 8 Articles Module 9 Assignment	11/25
11/26	Module 10 – Transportation Fires and Related Safety Issues	FBCP - Chapter 9 Articles Module 10 Assignment Research Paper #2	12/2
12/3	<b>TBD and</b> Final Exam distributed		
<b>12/10</b>	<b>Final Exam due</b>		

Note: all assignments are due by 2355 (Eastern time) on the due date specified. Class schedule subject to change. Changes will be announced in class or on Blackboard.