1. Introduction
Welcome to ISAT 427, *Industrial Hygiene*. I encourage you to give me comments and suggestions throughout the semester – your views are important to me. If you see problems, tell me and suggest solutions. Of course, if you are happy with the way things are going, it’s okay to tell me that too.

2. Course Objectives
The objective of this course is to introduce the technical foundations of the field of Industrial Hygiene. This first course in IH will familiarize the student with the field in its broadest sense, and will review and extend requisite science preparation in such areas as toxicology, acoustics, and radiation physics. Practical application of these principles to the modern industrial concern will be emphasized, allowing the interested student to pursue further training in Industrial Hygiene, either on-the-job or in graduate school.

3. Text and Materials
Students are encouraged to consult the following text:


While purchasing this book is not required, and readings will not be assigned, it will enhance the depth of knowledge in the topic and it is an excellent reference work for professionals.

Supplemental reading materials will be made available by the instructor via the web or handouts. Students will be expected to provide incidental materials (such as memory sticks and presentation materials) as needed throughout the course.

4. Dates and Deadlines for Course Changes
Students are responsible for registering for classes and for verifying their class schedules on e-campus. More information about dates and deadlines can be found at [http://www.jmu.edu/registrar/spring12basic.shtml](http://www.jmu.edu/registrar/spring12basic.shtml).

5. Faculty
Dr. Steven P. Frysinger: frysinsp@jmu.edu, 568-2710, ISAT 309
I’m happy to meet individually with you. The best way to arrange this is to email me with a few
day/time combinations that work for you and I’ll pick one that works for me and reply by email.
Of course you should feel free to stop by my office anytime.

6. Course Format
The course consists of two 75-minute discussion sessions per week. Some fieldwork is required.

7. Attendance and Participation
You are expected to attend and participate in all class sessions. Your instructor may take
attendance throughout the semester. You are expected to complete the assigned reading prior to
the date indicated in the class schedule, to do all homework assignments, and to participate fully
in classroom discussions. Your instructor will consider attendance and class participation in
assigning the course grade.

8. Submission of Work
All work must be turned in before the beginning of the class on the day it is due. If an email
response is requested, it must be sent by midnight of the due date. Any homework assignments
given are considered an essential component of class participation and will therefore have an
impact on the final grade.

In extraordinary circumstances, work may be handed in late without penalty. The circumstance
must be verifiable, fully documented, and acceptable to your instructor. Any such late
submissions must be made to your instructor at the earliest possible opportunity.

9. Grading
The graded components of the course contribute to the final grade as follows:

<table>
<thead>
<tr>
<th>Percentage</th>
<th>Component</th>
</tr>
</thead>
<tbody>
<tr>
<td>30%</td>
<td>Exam 1</td>
</tr>
<tr>
<td>30%</td>
<td>Exam 2</td>
</tr>
<tr>
<td>30%</td>
<td>Project</td>
</tr>
<tr>
<td>10%</td>
<td>Class Participation (including homework)</td>
</tr>
</tbody>
</table>

10. Make-up Policy
Put simply, NO MAKE-UPS WILL BE GIVEN. A grade of zero (0) will be given for missed
assignments, &c. In extraordinary situations (that are verifiable and well documented), missed
work may be accepted late, at the instructor’s discretion.

11. Unauthorized Collaboration
All students are expected to comply fully with the JMU Honor Code, as presented in the Student
Handbook and at www.jmu.edu/honor/. It is a violation of the Honor Code to collaborate in an
unauthorized manner with one or more other students on an examination or any work submitted
for academic credit.
12. Electronic Communication
Your instructor will be posting materials to a web site:

http://www.jmu.edu/EnvironmentalMgt/Courses/ISAT427/

We will use Canvas to communicate as much as practicable. Your instructor will often communicate with you via email. Check your email account often (at least daily) for relevant information about the course.

Normally your instructor will respond to any messages within 24 hours during the regular school week. Short questions can be answered electronically very promptly by email. Either you or your instructor may use email to make an appointment for a face-to-face discussion.

13. Calculators
You are encouraged to use a ‘scientific’ calculator with at least one memory register, scientific number display, and exponential, logarithmic, and trigonometric function. Calculators may be used during quizzes and exams. You should bring your calculator with you to every class session. Your phone is not a calculator and cannot be used during exams.

14. Inclement Weather
If the university is closed due to inclement weather, makeup work, including exams, may be scheduled either the Saturday following the missed class, or at another time that is agreed upon by class members. Check the JMU homepage, www.jmu.edu, for information about university closures.

15. Caveat
This syllabus contains information regarding some JMU policies. If the information here differs from official JMU policy, then JMU policy supercedes. Please refer to www.jmu.edu/syllabus.
ISAT 427 Team Project Description

Your team project for this course requires you to adopt the role of a small consulting group which has been engaged by an employer to conduct an occupational safety and health audit of their workplace and make recommendations about possible improvements therein. In the past several area employers have agreed to support this project by serving as "clients", including Coors, R.R. Donnelly, Perdue, the Harrisonburg Incinerator, and JMU Facilities Management (both Fleet Operations and Power Plant). I'm contacting these again, as well as one or two others. I will also consider other suggestions from the class (e.g. if one of you has an employer which would be suitable for and agreeable to the project).

In the course of this exercise remember that your client, the employer, has engaged you as a third-party auditor - you are not playing the role of a regulatory inspector. The scenario is that each group is a "consulting firm" contracted by the employer to perform an internal audit to help them assess and improve their occupational health and safety picture. Each team should

1. research the nature of the business and workplace
2. have an opening meeting with the client,
3. do a walkthrough to become acquainted with the workplace,
4. design an audit and sampling plan
5. revisit the site to make observations, including such measurements as air quality and noise,
6. write an audit report for the client, and
7. conduct an exit interview with the client to present findings, and deliver the audit report.

Steps 1-3 will help you to determine which workplace hazards are likely to be of concern. This will help you to prepare your auditing and sampling plan. Your on-site audit (step 5) should include observation of hazards, measurement of air quality, and measurement of noise. If appropriate and possible, WBGT temperatures should also be determined. Fire safety precautions should be evaluated, and with the employer's permission, OSHA records examined for completeness (be aware that the employer may not permit this). All equipment and instruments are to be checked out in accordance with ISAT lab procedures, and you are responsible for their safe return.

After you've analyzed your data and observations, you should document these (step 6), along with recommendations, in a memorandum (business format) to your client. In your exit meeting with the client (step 7) you should go over your findings and recommendations with them, as is standard practice in the auditing arena. A similar presentation will be made to the class, with your memorandum handed in as the final deliverable.
### ISAT 427: Industrial Hygiene - Spring 2017
Last revised January 3, 2017

<table>
<thead>
<tr>
<th>#</th>
<th>Week of…</th>
<th>Tuesday</th>
<th>Thursday</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1/10</td>
<td>What is Industrial Hygiene?</td>
<td>Legislation and Regulation Project Kickoff</td>
</tr>
<tr>
<td>2</td>
<td>1/17</td>
<td>The Industrial Hygiene Profession</td>
<td>Dermal Exposures</td>
</tr>
<tr>
<td>3</td>
<td>1/24</td>
<td>Toxicology</td>
<td>Measuring Toxicity and Assessing Risk</td>
</tr>
<tr>
<td>4</td>
<td>1/31</td>
<td>Inhalation Exposures</td>
<td>Monitoring The Industrial Atmosphere</td>
</tr>
<tr>
<td>5</td>
<td>2/7</td>
<td>Assessment Day – no class</td>
<td>Controlling The Industrial Atmosphere</td>
</tr>
<tr>
<td>6</td>
<td>2/14</td>
<td>Acoustics and Noise</td>
<td>Acoustics and Noise</td>
</tr>
<tr>
<td>7</td>
<td>2/21</td>
<td>Review</td>
<td>TEST 1</td>
</tr>
<tr>
<td>8</td>
<td>2/28</td>
<td>Exam Review</td>
<td>Project Work Day</td>
</tr>
<tr>
<td>9</td>
<td>3/7</td>
<td>Spring Break</td>
<td>Spring Break</td>
</tr>
<tr>
<td>10</td>
<td>3/14</td>
<td>Heat Stress</td>
<td>Fire and Explosion Hazards</td>
</tr>
<tr>
<td>11</td>
<td>3/21</td>
<td>Project Work Day</td>
<td>Project Work Day</td>
</tr>
<tr>
<td>12</td>
<td>3/28</td>
<td>Accidents and Ergonomics</td>
<td>Radiation</td>
</tr>
<tr>
<td>13</td>
<td>4/4</td>
<td>HAZWOPER Scenarios</td>
<td>Case Studies</td>
</tr>
<tr>
<td>14</td>
<td>4/11</td>
<td>Case Studies</td>
<td>Hazardous Materials Management Approach</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Chap 27</td>
</tr>
<tr>
<td>15</td>
<td>4/18</td>
<td>HAZWOPER Incident Management</td>
<td>Reality bites: Harrisonburg HAZMAT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Guest Speaker: Dr. Ron Raab</td>
</tr>
<tr>
<td>16</td>
<td>4/25</td>
<td>Hazard Recognition, Health &amp; Safety Plan (HASP)</td>
<td>TEST 2</td>
</tr>
<tr>
<td>17</td>
<td>5/2</td>
<td>PROJECT PRESENTATIONS (Date/time TBD)</td>
<td></td>
</tr>
</tbody>
</table>

NOTE: This schedule is tentative and is subject to change.