Global Learning Initiatives Program Course Syllabus

Course Information

Course Name	Safety in the Chemical Lab
Lecturer(s)	Associate Professor. Hongyan FENG
Course Description	Our approach is to teach safety in the chemical laboratory in small TOPICs by MOOC. Here are 36 topics of chemical safety, including videos, ppts, animation, etc. This freedom of learning process is practical and sends the message to students that safety is always important. Each lecture is 8 to 15 minutes and focuses on one topic. The topic is about working with flammable chemicals, a strong acid or an oxidizing agent safely, safe use of the lab emergencies or PPE well, dispose of wastes legally and appropriately and risk assessment for new experiments etc.
Course Objectives	Safety in the chemical lab is very important, we need to work with flammable chemicals, a strong acid or an oxidizing agent safely. We need to know the lab emergencies or PPE well. We need to dispose of wastes legally and appropriately. We need to risk assessment for new experiments. This MOOC will help undergraduate chemistry students and other learners to work in lab well.After studying this course, you can master the common experimental safety knowledge in the chemical laboratory.
Suggested Proficiencies (if any)	This MOOC is primarily for undergraduate chemistry students,but it is also useful for other laboratory science students, scientists, technicians, and investigators. Master of Mandarin is a plus
Reading List (if any)	

Grading Criteria	Discussion (30%): Students who get full marks need to participate in the discussion initiated by the teacher in the "Classroom Exchange Area". The total number of posts and replies is 20 or more. The MOOC platform defaults that only this part of the discussion can calculate the score. Each chapter of this course will specify a discussion topic, and students can choose to participate according to their interests. Quiz (20%): Each quiz includes 5 multiple-choice questions, each with 2 points for a total of 10 points. There is no time limit for each test, 3 attempts are allowed, and the effective score is the highest score. There are 10 chapter quizzes in this course. Assignment (10%): 1 unit assignment will be released this semester, including 1 subjective question, totaling 10 points. This question adopts the way of students' mutual evaluation of homework, and the minimum number of each student's mutual evaluation is 5. The system defaults that the unit work scores of students' mutual evaluations are taken as the median of their evaluated scores. Final exam (40%): Includes 25 multiple-choice questions and 25 true or false questions, each with 2 points, a total of 100 points; it needs to be completed within 60 minutes, and only one attempt is allowed. A total score of 60 points and above is qualified, 85 points and above are excellent, and corresponding certificates can be applied for.

Course Schedule

Class	Date (YYYY/MM/DD)	Course Topic	Lecturer
1	2021/03/01	1. Introduction of Safety in Chemical Lab 1.1 Introduction of Safety in Chemical Lab 1.2 Personal Protective Equipment	Hongyan FENG

		1.3 The Student Safety Ethic and Bad Habits in Chemical Lab	
2	2021/03/08	2. Identification and Classification for Hazardous Chemicals 2.1 Identification and Classification of Hazardous Chemicals 2.2 The Using of GHS and NFPA 704 in China	Hongyan FENG
3	2021/03/15	3. Hazards of Chemicals 3.1 Physical and Environmental Hazards of Chemicals 3.2 Cause and Health Hazards of Chemicals 3.3 Management and Use of Hazardous Chemicals	Hongyan FENG
4	2021/03/22	4. Classification, Storage and Use of Chemicals (Part I) 4.1 Safe Storage of Chemicals: Location, Cabinets and Bottles 4.2 Classification, Storage and Use of Organic Chemical Reagents (Part I) 4.3 Classification, Storage and Use of Organic Chemical Reagents (Part II)	Hongyan FENG
5	2021/03/29	5. Classification, Storage and	Hongyan FENG

		Use of Chemicals (Part II) 5.1 Classification, Storage and Use of Inorganic Metallic Elementary substances 5.2 Classification, Storage and Use of Inorganic Nonmetallic Elementary substances 5.3 Classification, Storage and Use of Inorganic Salt	
6	2021/04/05	6. Classification, Storage and Use of Chemicals((Part Ⅲ) 6.1 Classification, Storage and Use of Inorganic Acids and Bases 6.2 Classification, Storage and Use of Inorganic Oxides 6.3 Emergency and Disposal for Common Chemicals	Hongyan FENG
7	2021/04/12	7. Safety and Lab Rules for Organic Chemistry Laboratories 7.1 Reagents and Basic Lab Glassware 7.2 Basic Lab Techniques and Equipment	Hongyan FENG
8	2021/04/19	8. Safe use of Pressure Vessels	Hongyan FENG

		8.1 Principles for Gas Cylinders 8.2 Hazards from Common Kinds of Gas Cylinders 8.3 Safe use of Pressure Vessels	
9	2021/04/26	9. Hazards from Lab Water and electric 9.1 Electrical Shock Accidents and First Aid Measures 9.2 Electrical Accidents in the Lab and Preventive Measures 9.3 Hazards from Lab Water	Hongyan FENG
10	2021/05/03	10. Safety of Lab Instruments & Equipments 10.1 Safety and Classification for Common Instruments 10.2 Safety Management and Use of Large Lab Instruments & Equipment 10.3 Safety Precautions for Use of Large Instruments & Equipment	Hongyan FENG
11	2021/05/10	11. Lab Hazardous Wastes (Part I) 11.1 Safety Management of Lab Hazardous Wastes	Hongyan FENG

		11.2 Disposal and Recycling of Organic Wastes	
12	2021/05/17	12. Lab Hazardous Wastes (Part II) 12.1 Disposal and Recycling of Liquid Inorganic Wastes 12.2 Disposal and Recycling of Solid Inorganic Wastes 12.3 “Going Green”: Wastes Disposal in the lab	Hongyan FENG
13	2021/05/24	13. Fire-fighting in Chemical Lab 13.1 Fire Safety in Chemical Lab 13.2 Classification and Use of Fire Extinguishers 13.3 Introduction of Fire-fighting Equipment and Fire Safety Symbols	Hongyan FENG
14	2021/06/04	Examination	Hongyan FENG