

LECTURE AND TUTORIAL TOPICS

Week	Lecture Hours Monday and Wednesday (16:00 - 17:00)	Lecture Topic	Tutorial
1	1	Introduction/Welcome <ul style="list-style-type: none"> • Course overview • Tour on Sakai, MS Teams or Life size • Introduce BU101, Science Start, Lab Skills Plus programs 	No tutorial in first week
	2	How to be a Good Student: <ul style="list-style-type: none"> • How to make use of library resources <ul style="list-style-type: none"> ○ Effective searches for information ○ Critically assess the reliability of information sources • Avoiding plagiarism and importance of academic integrity 	
2	3	Time Management <ul style="list-style-type: none"> • Importance of setting goals • The role of planning to be an excellent student • How to use planner to be an excellent student 	Tutorial 1: Explore BU101 resources
	4	Fundamentals of Scientific Writing <ul style="list-style-type: none"> • Format, proper usage of words, sentence structure, paragraph organization • Revising drafts 	
3	5	Fundamentals of Mathematics for Science Students <ul style="list-style-type: none"> • Numerical calculations (working with fractions, exponents, square roots, percentages, etc.) • Scientific Units, Conversions • Dimensional analysis 	Tutorial 2: Reinforcement of this week's mathematics

	6	<p>Fundamentals of Scientific Writing (continued)</p> <ul style="list-style-type: none"> • Format, proper usage of words, sentence structure, paragraph organization • Paraphrasing 	
4	7	<p>Structure of Scientific Experiments</p> <ul style="list-style-type: none"> • Experimental controls • Placebo controlled experiments • Blinded experiments • Double blinded experiments • Bias in experimental work 	Tutorial 3: Lab safety; Structure of a scientific investigation
	8	<p>Fundamentals of Scientific Writing (continued)</p> <ul style="list-style-type: none"> • Drafting • Revising 	
5	9	<p>Fundamentals of Scientific Writing (continued)</p> <ul style="list-style-type: none"> • Citing references • Common reference styles • Managing sources 	Tutorial 4: Paraphrasing; Citation using APA format
	10	<p>Algebra and Solving Equations</p> <ul style="list-style-type: none"> • Fundamentals of algebra • Solving equations 	
6	11	<p>Graphical Analysis</p> <ul style="list-style-type: none"> • Creating, interpreting and understanding various types of graphs 	Tutorial 5: Data collection analysis, use of Excel and word processing software to prepare scientific documents and analyze data.
	12	<p>Graphical Analysis (continued)</p> <ul style="list-style-type: none"> • Creating, interpreting and understanding various types of graphs • The crisis of irreproducibility in life sciences 	
7	13	<p>Data Analysis</p> <ul style="list-style-type: none"> • Basic data analysis (Mean, median, standard deviation, error bars in experimental measurements) 	Tutorial 6: How to write a lab report

		<ul style="list-style-type: none"> • Basic statistical tools in excel 	
	14	Data Analysis (continued) <ul style="list-style-type: none"> • Applications of data analysis to experimental data 	
8	15	Trigonometry <ul style="list-style-type: none"> • Basic trigonometry • Solving equations 	Tutorial 7: Reinforcement of this week's mathematics
	16	Reading Strategies <ul style="list-style-type: none"> • Reading and summarizing scientific papers • Reading textbook 	
9	17	Logarithmic and Exponential Functions <ul style="list-style-type: none"> • Fundamentals of logarithmic and exponential rules • Solving equations 	Tutorial 8: Reinforcement of this week's mathematics
	18	Introduction to Chemistry <ul style="list-style-type: none"> • Chemical basis of life: atoms, molecules, organic molecules 	
10	19	AZLS Workshop on Oral Presentation <ul style="list-style-type: none"> • Structure and design • Use of visual aids • Presenter tools in PowerPoint 	Tutorial 9: Use of PowerPoint software to prepare oral presentation
	20	Introduction to Biology <ul style="list-style-type: none"> • Unit of life • Role of microbes in human life. • Examples of global emergencies 	
11	21	Graphical and Data Analysis <ul style="list-style-type: none"> • More graphical and data analysis • Accidental discoveries in science • Introduction to radioactivity, nuclear structure, etc. 	Tutorial 10: Reinforcement of this week's mathematics
	22	Research Proposal <ul style="list-style-type: none"> • Writing research statement • Format of research proposal 	

		<ul style="list-style-type: none"> • Ethical considerations 	
12	23	Preparing for Lab Courses <ul style="list-style-type: none"> • Basic lab calculations • Plan your lab assignments • Preparing for lab exams 	No tutorial in final week
	24	Summary and Review <ul style="list-style-type: none"> • Mathematics review • Science review 	