UNIVERSITY OF THE PUNJAB

NOTIFICATION

It is hereby notified that on the recommendations of the Board of Studies in Education, the Vice-Chancellor in anticipation of the approval of the other relevant bodies, has approved the Syllabi and Courses of Reading for M.A. Education (Elementary and Secondary) & M.Ed (General and Science), under Annual System for Affiliated Colleges w.e.f Academic Session 2006.

The Syllabi and Courses of Reading is attached herewith, vide Annexure 'A'.

Sd/-

Admin Block
QUAID E-AZAM CAMPUS,
Lahore.
No. 4769 - Acad.
Copy of the above is forwarded to the following for information and further action:

1. Dean, Faculty of Education
2. The Director, Institute of Education & Research.
3. Members of the Board of Studies in Education.
4. Chairperson, DPCC
5. Principals of Affiliated Colleges
6. Controller of Examinations
7. Deputy Controller (Secrecy)
8. Treasurer
9. Deputy Registrar (General)
10. A.R. (Statutes)
11. Secretary to the Vice-Chancellor
12. Secretary to the Registrar
13. Information Cell

Prof. Dr. Muhammad Naeem Khan
REGISTRAR

Deputy Registrar (Academic) for Registrar
Deputy Registrar  
Academic  
University of the Punjab  
Lahore  

Subject: Scheme of Studies of Annual System of M.A Education (Elementary and Secondary) & M.Ed (General and Science) of Affiliated Colleges

Reference letter No. D/2329/AF dated 26-02-2007. (Copy attached)

As per decision of the University, affiliated colleges have to shift to annual system of examination. The colleges affiliated to the University of the Punjab in Education was asked vide above refereed letter to provide syllabus of Annual Examination.

The Board of Studies in Education has developed the syllabus as per requirement. Copy of the same is attached for notification.

Prof. Dr. Hafiz Muhammad Iqbal  
Director IER and  
Convenor Board of Studies in Education

Cc:  
Deputy Registrar Affiliation for Registrar
### M. Ed. Science

**Core Courses:**

<table>
<thead>
<tr>
<th></th>
<th>Course</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>Foundations of Education</td>
<td>100</td>
</tr>
<tr>
<td>2</td>
<td>Research Methods in Education</td>
<td>100</td>
</tr>
<tr>
<td>3</td>
<td>Curriculum &amp; Instruction</td>
<td>100</td>
</tr>
<tr>
<td>4</td>
<td>Educational Assessment &amp; Evaluation</td>
<td>100</td>
</tr>
<tr>
<td>5</td>
<td>Instruction Technology &amp; Computer Application in Education</td>
<td>40+60</td>
</tr>
<tr>
<td>6</td>
<td>Educational Leadership and Management</td>
<td>100</td>
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</table>

**Area of Specialization**

<table>
<thead>
<tr>
<th></th>
<th>Course</th>
<th>Credits</th>
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<tbody>
<tr>
<td>7-8</td>
<td>Laboratory Techniques and Management</td>
<td>200</td>
</tr>
<tr>
<td></td>
<td>Concept Learning in Science Education</td>
<td></td>
</tr>
</tbody>
</table>
Guidelines for Student Teaching Practice (200 Marks)

1. Duration of teaching practice will be of six weeks with minimum 100 lessons

2. Teaching practice will be in relevant subjects and level

3. Student teacher will plan and teach minimum 100 lessons

4. Student teacher will observe 20 lessons and write criticism

5. Student teacher will organize 5 co-curricular activities in practicing schools

6. Faculty supervisor will be overall responsible for teaching practice and will be responsible for the following:
   a. Coordination of teaching practice
   b. Supervision of teaching practice
   c. Evaluate student teacher in both subjects of teaching practice, activity organization etc.
   d. Faculty supervisor will award marks out of 50 in each subjects

7. There will be a cooperative supervisor for a student teacher from the staff of the practicing school. He will award marks out of 25 in each subject.

8. Two model lessons will be delivered by student teacher. An external examiner appointed by the university will award marks out of 25 for each delivered model lesson.
CURRICULUM FOR M.Ed.SCIENCE

Under annual system

UNIVERSITY OF THE PUNJAB LAHORE
<table>
<thead>
<tr>
<th>PAPER NUMBER</th>
<th>COURSE TITLE</th>
<th>TOTAL MARKS</th>
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<tbody>
<tr>
<td>Paper 1</td>
<td>Foundations of Education</td>
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<tr>
<td>Paper 2</td>
<td>Leadership and Management in Schools</td>
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<td>Paper 3</td>
<td>Curriculum and Instructions</td>
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<tr>
<td>Paper 4</td>
<td>Assessment and Evaluation</td>
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<tr>
<td>Paper 5</td>
<td>Research Methods in Education</td>
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<tr>
<td>Paper 6</td>
<td>Instructional Technology and</td>
<td>40 +</td>
</tr>
<tr>
<td></td>
<td>Computer Applications in Education</td>
<td>60</td>
</tr>
<tr>
<td>Paper 7</td>
<td>Concept Learning in Science Education</td>
<td>100</td>
</tr>
<tr>
<td>Paper 8</td>
<td>Laboratory Techniques and Management</td>
<td>100</td>
</tr>
</tbody>
</table>
FOUNDATION OF EDUCATION

Philosophical Foundations

- Concept of Education
- Nature and Functions of Philosophy
- Relationship between Education and Philosophy
- Various Philosophies with focus on their basic principles and educational implications:
  - Idealism
  - Realism
  - Pragmatism
  - The Contribution of various educational thinkers to Education:
    - Imam Ghazali
    - Ibne-e-Khalidoon
    - Aliana Iqbal
    - Rousseau
    - John Dewey
    - Robert Hutchins

Islamic Foundations

- Aims and objectives of Education in Islam
- Sources of knowledge in Islam
- Ideological Foundations of Education in Pakistan
- Islamization of Education in Pakistan

Social Foundations

- Nature of Society
- Relationship between education and society
- Social Functions of Education

Economic Foundations

- The concept of Economics of education
- Education as an investment
- Implications for economics of education in Pakistan

Historical Foundations

- A brief Account of British Educational Policy in the Indo-Pak Sub-continent under the following headings:
- A brief review of education in the sub-continent before the English Era
  - Macaulay's Minutes
  - Wood's Dispatch
  - Hunter Commission
  - Indian University Act
  - Sadler Commission
  - Hartog Committee
  - Sargason Scheme

- Development of the idea of National Education in the Sub-Continent Institutions of National Education:
  - Dar-ul-Uloom Deoband, Jamia Millia Islamia, Nadvat-ul-Ulama
Education in Pakistan

First Educational Conference 1947
National Commission on Education 1959
Education Policy 1970
New Educational Policy 1972
National Education Policy 1978
Education Policy 1998
Education Sector reforms

Psychological Foundations

Introduction
Learning Theories
Classroom Management
Guidance and Counseling
Educational Leadership and Management In Schools

On completion of this course a person will have enough knowledge about basic concepts theories and models of Educational Administration and Supervision. It is expected that the person will be able to work as administrator of any Educational Institution competently.

Education: Definition and explanation

Management Administration & Supervision: Definition, Differences and explanation

POSD CorB

Planning: Definition
Why we plan
Planning process
Kinds of Planning
Types of planning

Organization Structure

Basic concepts of Organizational structure
Why people from organizations
Characteristics of an effective organization

Need of Administration
Development of Administrative Theory
What is a theory
Classical organization theory
Scientific management
Administrative management
Human relation approach
The hawthorne studies
Behavioral science approach
The individual and the organization
Development of administrative thought
System theory
Conflict management:
Effective time management
Managing meetings
Interpersonal relationships
Management of staff development
Management of school records
Management school environment (with special reference to Islam)
Managing Behavior/school discipline
Classroom management
Budget
Staff Evaluation

Leadership and Leadership theories

Basic System Model

A System view of school administration

Educational administration: Definition and explanation
Principles of an effective educational organization and administration
Some roles of an administrator
Some qualities for a competent administrator

Administrative Process:

Motivation
Communication
Decision Making
Leadership

Theories and Models of administration
Difference between theory and a Model
Introduction to Theories of Administration

- Great Man theory
- Charismatic Theory
- Social system theory
- Situational theory
- Path Goal theory
- Life Cycle theory
- Theory X-Y
- Theory Z
- Personal Qualities theory/trait theory

Models of administration:

Formal Models:
Authoritarian/Autocratic Model
System Model
Hierarchical Model
Democratic Model
Lasses faire Model

Total quality management: The educational perspective
Islamic concept of administration (Mushawari Model of administration)
The use of Information technology in administration
Classroom management

Textbooks

Educational Administration: Concepts and practices By Lunenburg and Ornstein
Theories of Educational Management By Tony Bush

Further Readings:

Longman


CURRICULUM AND INSTRUCTION

Concept of Curriculum

a. Education and Curriculum Relationship
b. Definition of Curriculum
c. How Curriculum differs form:

Syllabus
Course of Study
Educational Programme
Teaching
Instruction
Level of Curriculum

d. Level of Curriculum
e. Types of Curriculum
f. Scope of Curriculum
g. Basic Elements of curriculum

Curriculum Development

a. Nature and Meaning of Curriculum
b. Need for Planning
c. Curriculum Development Levels.

Culture and Curriculum Development

a. Nature and Meaning of Culture
b. Basic Elements of Culture
c. Culture core and persistent life situation
d. Cultural root of the curriculum
e. Cultural change and Curriculum

Factors and Forces Influencing Curriculum Development

a. Internal forces: Teacher Pupil School Environment etc.
b. External forces: Contemporary life Technology, knowledge Ideology, Economics Pressure groups, Legal constraints.

Foundations/Bases of Curriculum

a. Philosophical Bases
b. Psychological Bases.
c. Sociological Bases  
d. Economic Bases  

Curriculum Development Process  

a. Analysis of Situation  
b. Formulation of Aims and Objectives  
c. Selection of Learning Experiences  
d. Selection of Content  
e. Organization of Experiences and Content  
f. Selection of Teaching-learning Strategies  
g. Evaluation  

Organizing for Curriculum Development  

a. A Curriculum Development organization model  
b. Organization Personnel  

Formulating Curricular Objectives  

a. Educational Aims Sources  
b. Validation of Educational Objectives Criteria  
c. Classification of Objectives-Blooms Taxonomy  
d. Preparing instructional objectives  

Selection of Learning Experiences and Content  

a. Selection of appropriate learning experiences  
   Learning Principle  
   Developmental task  
   Developmental Stages of Piaget  

b. Selection of Content/Subject matter  
   Conceptual frame work  
   Basic Themes or Key ideas  

c. Principles of Selection of Experiences and Content  
   Procedures of Content Selection  
   a. Judgemental procedure  
   b. Analytical Procedure  
   c. Consensual Procedure  
   d. Experimental Procedure  

Organization of Experiences and Content  

a. Organization Approaches
Curriculum Development in Pakistan

a. Planning Process in Pakistan
b. Agencies Responsible for Curriculum Development at national and Provincial level
c. Critical evaluation of the Situation


Further Readings:

Assessment and Evaluation

Introduction

Historical overview of assessment and evaluation
Definition of the terms, test measurement and assessment
General Principles of assessment
Assessment and the Instructional process
Types of testing and Assessment procedures

Preparing Instructional Objectives

Instructional Objectives
Selecting Instructional Objectives
Taxonomy of Education Objectives
Methods of stating Instructional Objectives
Instruction vs. Behavioral Objectives

Planning for Classroom Test

Importance/purpose of classroom testing
Planning a classroom test
Defining Objectives
Specifying content
Preparing blue prints/master charts
Preparing test items

Constructing Test Items

Selection Type (Objective types)

Multiple choice questions (Characteristics, uses, Advantages, Limitations Rules for Construction)
True false Questions
Matching items
Completions Items

Supply Type (Essay type)

Forms and uses
Advantages/Limitations
Rules for Construction
Evaluation/scoring

Issues of Quality in Assessment and Evaluation

Validity

Reliability
Elementary Statistical concepts used in Assessment and Evaluation

Frequency Distribution

Types of Scales
Continuous and Discrete Series
Drawing up frequency distribution
Graphic representation of frequency distribution

Measures of Central tendency

Calculation of Arithmetic Mean
Calculation of Median
Calculation of Mode

Measures of Variability

New Trends and Issues

Portfolio Assessment
Dynamic Assessment
Computer assisted assessment and evaluation

References.


RESEARCH METHODS IN EDUCATION

INTRODUCTION TO EDUCATIONAL RESEARCH
- Meaning and definition of education research
- The Scientific method
- Purposes and features of research
- Application of the scientific methods in education

TYPES OF RESEARCH
- Basic verses applied research
- Historical research
- Descriptive research
- Correlational research
- Causal comparative research
- Experimental research
- Action research
- Qualitative and Quantitative Research

RESEARCH PROBLEM
- Selection
- Sources
- Characteristics/criteria
- Statement

REVIEW OF RELATED LITERATURE
- Definition purpose and scope
- Preparation
- Sources
- Abstracting
- Reporting

RESEARCH HYPOTHESIS OR QUESTIONS
- Definition and purpose
- Characteristics
- Types of Hypotheses
- Stating the hypothesis/question

SAMPLING
- Definition and purpose
- Techniques of sampling
- Probability Sampling Techniques
  - Random sampling
  - Stratified sampling
  - Cluster sampling
  - Systematic sampling
- Non-probability sampling techniques
  - Convenience sampling
- Purposive/Judgmental sampling
- Snowball sampling
- Quota sampling

**RESEARCH INSTRUMENTS**
- Purpose of research instruments
- Characteristics of research instruments
- Validity
- Reliability
- Usability

- Construction of Instruments
  - Questionnaire
  - Observation scale
  - Rating scale
  - Tests (and their types)

**RESEARCH TYPES (DETAIL DISCRIPATION)**
 * Historical Research
   - Descriptive research
   - Correlational research
   - Causal-comparative research
   - Experimental research

**COLLECTION AND ANALYSIS OF DATA**
- Data Collection
- Scoring coding and tabulation of data
- Data Analysis
- Interpretation of data

**STATISTICS IN EDUCATION**
- Need of Statistical Analysis
- Levels of measurement
- Descriptive Statistics
- Inferential statistics
- Parametric tests (t-test, f-test)
- Non-parametric test (X)

**WRITING RESEARCH PROPOSAL AND REPORT**
- General rules for writing and typing
- Format and style
- Types of research reports
- Theses and dissertations
- Journals Article
- Papers read at professional meetings
Recommended Textbooks


ADDITIONAL READING LIST


Instructional Technology and Computer Application in Education

Section-1
Instructional Technology

Contents

Nature of instructional Technology
  Meanings of instructions
  Various concepts of instructional technology
  Relationship between different aspects of instructional technology core of experiences

Instructional media
  Concept and need
  Criteria for selection of Instructional Media
  Types of Instructional aids
  Projected and no projected aids
  Audio, visual and audiovisual aids

Printed media
  Types and Usage

Graphic materials
  Types and Usage

Electronic and non-electronic media
  Types and Usage
  Resource centers and their usage
  Low cost and no cost materials
  Types and Usage

Use of instructional technology for group and individualized teaching
Instruction Technology & Computer in Education

Section-II
Computer Applications in Education

Syllabus
Introduction to Computer
- Introduction
- What is computer?
- Data and Information

Characteristics of Computers.
- Types of Computers
- Analog Computers
- Digital Computers
- Hybrid Computers

Classification of Computer

- Super Computers
- Main Frame Computers
- Mini Computers
- Micro Computers

The Evolution of Computers
- The Mark-I Computers
- The Atanasoff Berry Computers
- The ENIAC
- The EDSAC
- The Manchester Mark-I
- The UNIVAC-I

Computer Hardware
- Basic Computer Organization
- Basic Operations
- Input Unit
- Output Unit
- Arithmetic Logic Unit
- Control Unit
- Control Processing Unit
- The System Concept

Input Devices
- Key Board
- The Mouse
- Joy Stick
- Scanner
- Track Ball
- Phones & Voice recognition
- Digital Camera
- Barcode Reader/Light Pens
- Touch Screens
- Touch Pads
- Card Readers
- CD-Rom Players

Output Devices
- Printers
- Video (CRTs)
- Pen Plotters
- Electrostatic Plotters
- Voice Synthesizers
- Input-Output devices

Input-Output devices
- Disk Drives (Floppy Hard)
- Magnetic Tape Drives
- Modems (External Internal)
- Introduction to windows operating systems
- Booting of a computer
- Components of GUI
- Use of mouse (Left & Right Click)
- Starting a Program in windows
- Using my computer
- Shut Down Process
- File Management
- Searching a file

Numbers Systems
- Non-positional number system
- Positional number system
- Decimal Number system
- Binary Number System
- Octal number system
- Hexadecimal number system

Conversion from one number system to another
- Converting to decimal from another base
- Converting from base 10 to a new base
- Converting from a base other than 10 to a base other than 10
- Binary to Octal conversion
- Octal to Binary Conversion
- Binary to Hexadecimal Conversion
- Hexadecimal to Binary Conversion
- Function Numbers

Computer Software

- What is software?
- Relationship between Hardware and Software
- Types of Software
- System Software
- Operating System
- Programming Language Translators
- Service Software
- Application Software
- Productivity Software
- Business Software
- Education Software
- Entertainment Software
- Operating System
- Functions of the Operating System
- Functions of the Operating System
  - Firmware
- GUI & its advantages

MS Word

Changing default type size
The basics of entering text
Non-printing characters
Opening, editing, and saving documents
Creating a new document
Searching in a document

MS Word

- Formatting (Character, Font, Change Case, Paragraph)
- Working with indents
- Bullet and numbering
- Creating tabs
- Headers and footers
- Page Breaks

MS Word
- Table creation
- Table Editing
- Mid Term Exam

Storage

- Primary Storage
- Storage capacity
- RAM
- ROM
- PROM
- EPROM
- Difference of storage and memory
- CACHE MEMORY
- Registers
- Buses
- Ports Magnetic Disks
- The Floppy Disks
- Hard Disk
- Compact Disk (CD)
- Video or (Versatile) Disk (DVD)

**MS-Excel**

- Introduction of MS-Excel
- MS-Excel Screen
- Data entering
- Fixing of row or column
- Title
- Format
- Formula
- Function
- Sort Filter
- Chart

**MS-Power Point**

- Introduction to Interface
- Startup of MS Power point
- File Format
- Designing Slides
- Slide Show

**Use Computer in Education**

- Computer Assisted Instruction (CAI)
- Packages used for CAI
- Computer Managed Learning (CML)

**Internet**

- Internet Based E-mail
- E-mail Address
- Advantages and Disadvantages of E-mail
- Internet
- Advantages of Internet
- Main facilities offered by Internet
- Area Network (LAN)
- Area Network (WAN)

**Internet**
- Searching websites for education session-
- Searching websites for elementary education
- Searching websites for elementary education

**Data Communication**
- Introduction to Data Communication
- Elements of Data Communication System
- Data Communication Protocols
- Data Transmission Modes
- Simple mode
- Half Duplex mode
- Full Duplex Mode

**SPSS (Software)**
1. Instructional Aids/Resources White Board and white Board Markers.
2. OHP
3. Transparency sheets (useable with laser printer)
4. Multimedia
5. Software: MS-Office
6. Computer Lab Facilities to students and the resource person.
7. Photocopy facility
8. Printer
9. Package related to elementary education
10. Teaching strategies lectures
11. Slides on Multimedia/OHP
12. Demonstration
13. Hands on Labs
14. Group Discussion
15. Question Answer Session

**Text Books**

**Other Readings**

4. Buzley M.B (1985) using computers USA: SRA.


8. Online Help.
PAPER 7
CONCEPT LEARNING IN SCIENCE

THE NATURE OF SCIENCE CONCEPTS

What is Concept?
Concept Formation
Kinds of Concepts
Attributes of Concepts
The importance of Concepts in the Learning of Science
Children's Science and Scientist's Science
Children's Concepts: Preconceptions, Misconceptions, Alternatives
Frameworks, Children's Science

Role of Children's Science in future learning
Outcomes of interaction of Children's Science and Teacher's Science

THEORIES OF LEARNING

Jean Piaget's Theory of Intellectual Development
David Ausubel's Theory of Learning
Robert Gagne's Theory of Learning
The Learning of Science Concepts
The Teaching of Science Concepts
Concept Understanding
Concrete Level
Identity Level
Classificatory Level
Formal Level
Factors Influencing Learning

INVESTIGATIONS OF CONCEPT

Review of some selected Investigation Techniques

The Clinical Interview
Word-Association Tasks
Writing or Selecting a Definition
Identifying and Using Bipolar Dimensions in a Semantic Space

The Interview about Instances Approach

Some Theoretical Consideration about the Approach
The Main Features of Interview about Instances Approach

Potentials and Limitations of the Approach
A Review of some selected Approaches Investigating Children's Concepts

The Personal Construction of Knowledge Group (UK)
The Learning in Science Project (New Zealand)
The Children's Learning in Science Project (UK)

ASSUMPTIONS ABOUT TEACHING AND LEARNING
Assumptions about the Teaching Learning Process
The place of Science in the School Curriculum
Generative Learning
The Generative Learning Model of Teaching

CONCEPT MAPPING

What are Concept Maps?

Why should Concepts Maps be developed?

Steps for developing a concept Map

Various uses of Concept Maps

REVIEW OF RESEARCH FINDINGS ABOUT CHILDREN
CONCEPT IN SELECTED CONCEPT AREA

Force, Energy, Light, Electric Current, Friction, Living, Animal, Physical Change, Particles etc.

Worldwide view of children's Misconceptions
The Commonality of children's Misconceptions

CHILDREN'S IDEAS AND THEIR IMPLICATIONS FOR TEACHING

IMPLICATIONS OF CHILDREN'S IDEAS FOR CURRICULUM AND TEACHER EDUCATION

INTRODUCING CHILDREN'S IDEAS TO TEACHERS

STRATEGIES FOR MODIFYING CHILDREN'S IDEAS
Recommended Books and Articles

Learning in Science the implications of Children’s Science, by Roger Osborne and Peter Freyberg. Heinemann, Hong Kong 1993


Laboratory Techniques and Management

Why learn Science?
General objectives of science teaching.
Why do practical work?
Aims of practical work.
Contribution made by the practical work in Science Teaching.
A comparison of aims of practical work and the objectives of Science teaching.
What is an experiment demonstration, Exercise etc?

Techniques of practical work
- Standard exercise or verification type experiments examples
- Demonstrations, examples
- Discovery experiments, examples
- Projects examples

Demonstration- Function or the value of demonstration in the teaching of science.

Discovery Experiments.
- What is discovery approach to science teaching?
- Why discovery?
- Advantages of learning by discovery
- Necessary condition to stimulate discovery.
- Characteristics of discovery experiments.
- The role of teacher in discovery laboratory.

Projects
- What is Science Project?
- The project methods.
- Contribution of science project

Science Laboratories and their contribution in the teaching of science.

Design of Laboratories
- Site, structure, size, shape of laboratories
- Function of laboratory
- Storage of apparatus
- Services (electricity, gas and water)
- Laboratory Furniture
- Lighting, ventilation and blackout

Organization of Science Laboratories
- Maintenance
- Ordering supplies
Stock record
Repair of apparatus

The course will consist of the following activities

Activity 1: Instrumentation

The student will be introduced to complicated laboratory apparatus such as VTVM, Power supplies, signal generators, oscilloscope Ammeter, Voltmeter, Ammeter, Microscope, vernier caliper, Screw Gauge, Telescope.

Activity 2: Science Kit

Science kit students will be introduced to the concept of practical work using Science Kits. They will be required to work on a variety of kits such as:

- Elementary Science Kits:
  
  These will consist of sound, light, magnetism, motion, electrostatics, friction and inertia, electromagnetism, and simple machines.

- Secondary Science Kits

- Higher Level Kits
  
  Consists of Berkeley Physics Laboratory Electronics workshops etc.

Activity 3: Guided Discovery Experiments

Students will be required to do at least two experiments each either in Physical Chemistry or Biology under the guidance of the instructor.

Activity 4: Discovery Experiments

Student will be required to plan, design, and conduct at least two discovery experiments each in their own fields of interest and submit a written report.

Activity 5: Science Projects

Each student will be required to complete one science project and submit written report.