BSc in Chemistry Program
Program Intended Learning Outcomes

Upon successful completion of the program, students will be able to:

A. Chemistry Related Knowledge

1. Describe the fundamentals of chemistry including the structure, reactivity and properties of chemical substances and the states of matter.
2. Explain the essential facts, principles and theories across the four principal areas of chemistry, i.e. analytical, organic, inorganic and physical.
3. Evaluate and discuss the relevance of chemistry to social and daily life, for example in relation to environmental issues.

B. Chemistry Related Intellectual Skills

4. Formulate and analyze a wide range of analytical and synthetic chemical problems by applying chemical principles.
5. Analyze and interpret experimental data, critically assess data from literature sources and extract and apply useful data from those sources.
6. Carry out directed research, selecting appropriate topics and procedures, and presenting the results.
7. Interpret issues in chemistry with reference to the practices of the international scientific community.

C. Chemistry Related Practical Skills

8. Assess and manage the risks and hazards associated with chemical substances and laboratory procedures and evaluate their potential impact on the environment.
9. Conduct the standard laboratory procedures involved in synthetic and instrumental work. Operate a range of chemical instrumentation demonstrating adequate hands-on experience.

D. Transferable Skills

11. Communicate effectively both orally and in writing to a professional and/or lay audience.
12. Demonstrate information technology skills, especially in the areas of information retrieval, literature search and the use of library databases.
13. Demonstrate self-awareness and the ability to work independently and collaborate effectively with other people in a team.

BSc in Chemistry Program (Pure Chemistry Option)
Program Intended Learning Outcomes

Upon successful completion of the program, students will be able to:

A. Chemistry Related Knowledge

1. Describe the fundamentals of chemistry including the structure, reactivity and properties of chemical substances and the states of matter.
2. Explain the essential facts, principles and theories across the four principal areas of chemistry, i.e. analytical, organic, inorganic and physical.
3. Evaluate and discuss how scientific theories evolve and are tested, and the relevance of chemistry to social and daily life, for example in relation to environmental issues.

B. Chemistry Related Intellectual Skills

4. Formulate and analyze a wide range of analytical and synthetic chemical problems by applying chemical principles.
5. Analyze and interpret experimental data, critically assess data from literature sources and extract and apply useful data from those sources.
6. Carry out directed research, selecting appropriate topics and procedures, and presenting the results.
7. Interpret issues in chemistry with reference to the practices of the international scientific community.

C. Chemistry Related Practical Skills

8. Assess and manage the risks and hazards associated with chemical substances and laboratory procedures and evaluate their potential impact on the environment.
9. Conduct the standard and advanced laboratory procedures involved in synthetic and instrumental work.
10. Operate a range of chemical instrumentation demonstrating adequate hands-on experience.

D. Transferable Skills

11. Communicate effectively both orally and in writing to a professional and/or lay audience.
12. Demonstrate information technology skills, especially in the areas of information retrieval, literature search and the use of library databases.
13. Demonstrate self-awareness and the ability to work independently and collaborate effectively with other people in a team.

BSc in Chemistry (Materials Chemistry Option)
Program Intended Learning Outcomes

Upon successful completion of the program, students will be able to:

A. Chemistry Related Knowledge

1. Describe the fundamentals of chemistry including the structure, reactivity and properties of chemical substances and the states of matter.
2. Explain the essential facts, principles and theories across the four principal areas of chemistry (i.e. analytical, organic, inorganic and physical) as well as materials chemistry.
3. Evaluate and discuss the relevance of chemistry to social and daily life, for example in relation to environmental issues.

B. Chemistry Related Intellectual Skills

4. Formulate and analyze a wide range of analytical and synthetic chemical problems by applying chemical principles.
5. Analyze and interpret experimental data, critically assess data from literature sources and extract and apply useful data from those sources.
6. Carry out directed research, selecting appropriate topics and procedures, and presenting the results.
7. Interpret issues in chemistry with reference to the practices of the international scientific community.

C. Chemistry Related Practical Skills

8. Assess and manage the risks and hazards associated with chemical substances and laboratory procedures and evaluate their potential impact on the environment.
9. Conduct the standard and advanced laboratory procedures involved in materials synthesis and characterization.
10. Operate a range of chemical instrumentation demonstrating adequate hands-on experience.

D. Transferable Skills

11. Communicate effectively both orally and in writing to a professional and/or lay audience.
12. Demonstrate information technology skills, especially in the areas of information retrieval, literature search and the use of library databases.
13. Demonstrate self-awareness and the ability to work independently and collaborate effectively with other people in a team.

BSc in Chemistry (Environmental and Analytical Chemistry Option)
Program Intended Learning Outcomes

Upon successful completion of the program, students will be able to:

A. Chemistry Related Knowledge

1. Describe the fundamentals of chemistry including the structure, reactivity and properties of chemical substances and the states of matter.
2. Explain the essential facts, principles and theories across the four principal areas of chemistry (i.e. analytical, organic, inorganic and physical) as well as environmental science and chemical analysis through modern separation and instrumentation techniques.
3. Evaluate and discuss the relevance of chemistry to social and daily life, for example in relation to environmental issues.

B. Chemistry Related Intellectual Skills

4. Formulate and analyze a wide range of analytical and synthetic chemical problems by applying chemical principles.
5. Analyze and interpret experimental data, critically assess data from literature sources and extract and apply useful data from those sources.
6. Carry out directed research, selecting appropriate topics and procedures, and presenting the results.
7. Interpret issues in chemistry with reference to the practices of the international scientific community.

C. Chemistry Related Practical Skills

8. Assess and manage the risks and hazards associated with chemical substances and laboratory procedures and evaluate their potential impact on the environment.
9. Conduct the standard and advanced laboratory procedures involved in environmental science and chemical analysis.
10. Operate a range of chemical instrumentation demonstrating adequate hands-on experience.

D. Transferable Skills

11. Communicate effectively both orally and in writing to a professional and/or lay audience.
12. Demonstrate information technology skills, especially in the areas of information retrieval, literature search and the use of library databases.
13. Demonstrate self-awareness and the ability to work independently and collaborate effectively with other people in a team.

BSc in Chemistry (Biomolecular Chemistry Option)
Program Intended Learning Outcomes

Upon successful completion of the program, students will be able to:

A. Chemistry Related Knowledge

1. Describe the fundamentals of chemistry including the structure, reactivity and properties of chemical substances and the states of matter.
2. Explain the essential facts, principles and theories across the four principal areas of chemistry (i.e. analytical, organic, inorganic and physical) as well as biomolecular chemistry.
3. Evaluate and discuss the relevance of chemistry to social and daily life, for example in relation to environmental issues.

B. Chemistry Related Intellectual Skills

4. Formulate and analyze a wide range of analytical and synthetic chemical problems by applying chemical principles.
5. Analyze and interpret experimental data, critically assess data from literature sources and extract and apply useful data from those sources.
6. Carry out directed research, selecting appropriate topics and procedures, and presenting the results.
7. Interpret issues in chemistry with reference to the practices of the international scientific community.

C. Chemistry Related Practical Skills

8. Assess and manage the risks and hazards associated with chemical substances and laboratory procedures and evaluate their potential impact on the environment.
9. Conduct the standard and advanced laboratory procedures involved in biomolecular synthesis and characterization.
10. Operate a range of chemical instrumentation demonstrating adequate hands-on experience.

D. Transferable Skills

11. Communicate effectively both orally and in writing to a professional and/or lay audience.
12. Demonstrate information technology skills, especially in the areas of information retrieval, literature search and the use of library databases.
13. Demonstrate self-awareness and the ability to work independently and collaborate effectively with other people in a team.