

**Department of Agribusiness and Consumer Sciences**

**BSc. Applied Agricultural Economics Program (Study Plan)**

| <b>Level</b>   | <b>Course Code</b> | <b>Course Title</b>                         | <b>Pre-Requisite Courses</b> | <b>Credit Hours</b> |
|----------------|--------------------|---------------------------------------------|------------------------------|---------------------|
| <b>Level 1</b> | 0151101            | Introduction to Statistical Science         | -                            | 2(1+1)              |
|                | 0158101            | Introduction to Computer                    | -                            | 3(2+1)              |
|                | 0201101            | Islamic Culture                             | -                            | 2(2+0)              |
|                | 0815160            | General Chemistry                           | -                            | 4(3+1)              |
|                | 0817160            | General Mathematics                         | -                            | 3(2+1)              |
|                | 1700101            | English Language                            | -                            | 3(3+0)              |
| <b>Level 2</b> | 0151102            | Introduction to Economics                   | -                            | 3(2+1)              |
|                | 0201251            | Faith and Ethics inIslam                    | -                            | 2(2+0)              |
|                | 0814161            | General Physics                             | -                            | 4(3+1)              |
|                | 0816163            | General Biology                             | -                            | 4(3+1)              |
|                | 1701103            | Scientific English Language                 | 1700101                      | 3(3+0)              |
| <b>Level 3</b> | 0153201            | Principles of Animal and Fishery Production | -                            | 3(2+1)              |
|                | 0156201            | Principles of Plant Production              | -                            | 3(2+1)              |
|                | 0157201            | Principles of Food Science and Nutrition    | -                            | 2(2+0)              |
|                | 0201351            | Economical System in Islam                  | -                            | 2(2+0)              |
|                | 0202111            | Writing and Expression                      | -                            | 3(2+1)              |
|                | 0815161            | Organic Chemistry                           | 0815160                      | 3(2+1)              |
| <b>Level 4</b> | 0151202            | Communication and Learning Skills           | -                            | 2(2+0)              |
|                | 0154202            | Environment and Natural Resources           | -                            | 3(2+1)              |
|                | 0155202            | Fundamentals of Biotechnology               | -                            | 3(2+1)              |
|                | 0158202            | Agriculture System Engineering              | -                            | 3(2+1)              |
|                | 0201401            | Political and Social System in Islam        | -                            | 2(2+0)              |
|                | 0815163            | Biochemistry                                | 0815161                      | 3(2+1)              |
| <b>Level 5</b> | 0151300            | Research Methodology                        | -                            | 1(1+0)              |
|                | 0151327            | Microeconomics                              | 0151102<br>0817160           | 3(3+0)              |
|                | 0151329            | Macroeconomics                              | 0151102                      | 2(2+0)              |
|                | 0151331            | Agricultural Economics                      | 0151102                      | 2(2+0)              |
|                | 0151333            | Economics of Agricultural Cooperation       | 0151102                      | 2(2+0)              |
|                | 0151335            | Production Economics                        | 0151102                      | 2(2+0)              |
|                | 0622111            | Principles of Business Management           | -                            | 3(3+0)              |
|                | 0612120            | Principles of Accounting (1)                | -                            | 3(3+0)              |
| <b>Level 6</b> | 0151326            | Money and Banking                           | 0151102                      | 2(2+0)              |
|                | 0151328            | Mathematical Economics                      | 0151102<br>0817160           | 2(1+1)              |
|                | 0151330            | Economics of Water in Agriculture           |                              | 2(2+0)              |
|                | 0151332            | Agricultural Marketing                      | 0151102                      | 3(3+0)              |
|                | 0151334            | Agricultural Finance                        | 0151102                      | 3(3+0)              |
|                | 0151336            | Agricultural Data Analysis                  | 0151102                      | 3(3+0)              |
|                | 0151338            | International Trade                         | 0151102                      | 3(3+0)              |
| <b>Level 7</b> | 0151402            | Discussion                                  | -                            | 1(1+0)              |
|                | 0151404            | Special Studies                             | -                            | 2(0+2)              |
|                | 0151426            | Environment and Resources Economics         | -                            | 2(2+0)              |
|                | 0151428            | Agricultural Policy and Development         | -                            | 2(2+0)              |

|                    |         |                              |                                  |        |
|--------------------|---------|------------------------------|----------------------------------|--------|
|                    | 0151430 | Econometrics                 | 0151328                          | 3(2+1) |
|                    | 0151432 | Economics of Farm Management | -                                | 2(2+0) |
|                    | 0151434 | Operational Research         | 0151102                          | 3(3+0) |
|                    | 0151436 | Economic Feasibility Studies | 0151102                          | 3(3+0) |
| <b>Level<br/>8</b> | 0151400 | Cooperative Training         | Completion of<br>levels 5, 6 & 7 | 9(0+9) |

## Department of Animal and Fishery Production Sciences

### BSc. Poultry Science Program (Study Plan)

| Level          | Course Code | Course Title                                | Pre-Requisite Courses | Credit Hours |
|----------------|-------------|---------------------------------------------|-----------------------|--------------|
| <b>Level 1</b> | 0151101     | Introduction to Statistical Science         | -                     | 2(1+1)       |
|                | 0158101     | Introduction to Computer                    | -                     | 3(2+1)       |
|                | 0201101     | Islamic Culture                             | -                     | 2(2+0)       |
|                | 0815160     | General Chemistry                           | -                     | 4(3+1)       |
|                | 0817160     | General Mathematics                         | -                     | 3(2+1)       |
|                | 1700101     | English Language                            | -                     | 3(3+0)       |
| <b>Level 2</b> | 0151102     | Introduction to Economics                   | -                     | 3(2+1)       |
|                | 0201251     | Faith and Ethics inIslam                    | -                     | 2(2+0)       |
|                | 0814161     | General Physics                             | -                     | 4(3+1)       |
|                | 0816163     | General Biology                             | -                     | 4(3+1)       |
|                | 1701103     | Scientific English Language                 | 1700101               | 3(3+0)       |
| <b>Level 3</b> | 0153201     | Principles of Animal and Fishery Production | -                     | 3(2+1)       |
|                | 0156201     | Principles of Plant Production              | -                     | 3(2+1)       |
|                | 0157201     | Principles of Food Science and Nutrition    | -                     | 2(2+0)       |
|                | 0201351     | Economical System in Islam                  | -                     | 2(2+0)       |
|                | 0202111     | Writing and Composition                     | -                     | 3(2+1)       |
|                | 0815161     | Organic Chemistry                           | 0815160               | 3(2+1)       |
| <b>Level 4</b> | 0151202     | Communication and Learning Skills           | -                     | 2(2+0)       |
|                | 0154202     | Environment and Natural Resources           | -                     | 3(2+1)       |
|                | 0155202     | Fundamentals of Biotechnology               | -                     | 3(2+1)       |
|                | 0158202     | Agriculture System Engineering              | -                     | 3(2+1)       |
|                | 0201401     | Political and Social System in Islam        | -                     | 2(2+0)       |
|                | 0815163     | Biochemistry                                | 0815161               | 3(2+1)       |
| <b>Level 5</b> | 0151300     | Research Methods                            | -                     | 3(2+1)       |
|                | 0153303     | Introduction to Fish Production             | -                     | 3(2+1)       |
|                | 0153327     | Introduction to Poultry Production          | -                     | 3(2+1)       |
|                | 0153329     | The Principles of Animal Nutrition          | -                     | 3(2+1)       |
|                | 0153351     | Introduction to Ruminant Production         | -                     | 3(2+1)       |
|                | 0153353     | Biostatistics and Experimental Design       | 0151101               | 3(2+1)       |
|                | 0155351     | Genetics                                    | -                     | 2(1+1)       |
|                | 0153303     | Introduction to Fish Production             | -                     | 3(2+1)       |
| <b>Level 6</b> | 0153330     | Manufacturing and Processing Poultry Feed   | 0153327               | 3(2+1)       |
|                | 0153332     | Avian Physiology                            | 0153327               | 3(2+1)       |
|                | 0153334     | Poultry Farms Management                    |                       | 3(2+1)       |
|                | 0153336     | Applied Poultry Nutrition                   | 0153327               | 3(2+1)       |
|                | 0153338     | Egg Production                              | 0153327               | 3(2+1)       |
|                | 0153340     | Broiler Production                          | 0153327               | 3(2+1)       |
| <b>Level 7</b> | 0151332     | Agriculture Marketing                       |                       | 3(3+0)       |
|                | 0153402     | Seminar                                     |                       | 1(1+0)       |
|                | 0153404     | Special Studies                             |                       | 2(0+2)       |
|                | 0153426     | Poultry Behavior                            | 0153332               | 2(1+1)       |
|                | 0153428     | Poultry Diseases and Hygiene                | 0153332               | 2(1+1)       |
|                | 0153430     | Applied Poultry Breeding                    | 0155351               | 3(2+1)       |
|                | 0153432     | Production of Untraditional Poultry         | 0153327               | 3(2+1)       |
|                | 0153434     | New Techniques in Poultry Sciences          | 0153338               | 2(2+0)       |

|                    |         |                      |                                  |        |
|--------------------|---------|----------------------|----------------------------------|--------|
|                    |         |                      | 0153340                          |        |
| <b>Level<br/>8</b> | 0153400 | Cooperative Training | Completion of<br>levels 5, 6 & 7 | 9(9+0) |

**Department of Animal and Fishery Production Sciences**

**BSc. Fisheries Sciences Program (Study Plan)**

| <b>Level</b>   | <b>Course Code</b> | <b>Course Title</b>                         | <b>Pre-Requisite Courses</b> | <b>Credit Hours</b> |
|----------------|--------------------|---------------------------------------------|------------------------------|---------------------|
| <b>Level 1</b> | 0151101            | Introduction to Statistical Science         | -                            | 2(1+1)              |
|                | 0158101            | Introduction to Computer                    | -                            | 3(2+1)              |
|                | 0201101            | Introduction to Islamic Culture             | -                            | 2(2+0)              |
|                | 0815160            | General Chemistry                           | -                            | 4(3+1)              |
|                | 0817160            | General Mathematics                         | -                            | 3(2+1)              |
|                | 1700101            | English Language                            | -                            | 3(3+0)              |
| <b>Level 2</b> | 0151102            | Introduction to Economics                   | -                            | 3(2+1)              |
|                | 0201251            | Faith and Ethics in Islam                   | -                            | 2(2+0)              |
|                | 0814161            | General Physics                             | -                            | 4(3+1)              |
|                | 0816163            | General Biology                             | -                            | 4(3+1)              |
|                | 1701103            | Scientific English Language                 | 1700101                      | 3(3+0)              |
| <b>Level 3</b> | 0153201            | Principles of Animal and Fishery Production | -                            | 3(2+1)              |
|                | 0156201            | Principles of Plant Production              | 0816163                      | 3(2+1)              |
|                | 0157201            | Principles of Food Science and Nutrition    | -                            | 3(2+1)              |
|                | 0201351            | Economic System in Islam                    | -                            | 2(2+0)              |
|                | 0202111            | Writing and Expression                      | -                            | 2(2+0)              |
|                | 0815161            | Organic Chemistry                           | 0815160                      | 3(2+1)              |
| <b>Level 4</b> | 0151202            | Communication and Learning Skills           | -                            | 2(2+0)              |
|                | 0154202            | Environment and Natural Resources           | -                            | 3(2+1)              |
|                | 0155202            | Fundamentals of Biotechnology               | -                            | 3(2+1)              |
|                | 0158202            | Agriculture System Engineering              | -                            | 3(2+1)              |
|                | 0201401            | Political and Social System in Islam        | -                            | 2(2+0)              |
|                | 0815163            | Biochemistry                                | 0815161                      | 3(2+1)              |
| <b>Level 5</b> | 0151300            | Research Methods                            | 0153201                      | 1(1+0)              |
|                | 0153303            | Introduction to Fish production             | 0153201                      | 3(2+1)              |
|                | 0153327            | Introduction to poultry production          | 0153201                      | 3(2+1)              |
|                | 0153329            | The Principles of Animal Nutrition          | 0153201                      | 3(2+1)              |
|                | 0153351            | Introduction to Ruminant Production         | 0153201                      | 3(2+1)              |
|                | 0153353            | Biostatistics and Experimental Design       | 0151101                      | 3(2+1)              |
|                | 0155351            | Genetics                                    | 0816163                      | 2(1+1)              |
|                | 0153302            | Ichthyology                                 | -                            | 2(1+1)              |
| <b>Level 6</b> | 0153304            | Fish Biology and Physiology                 | 0153303                      | 3(2+1)              |
|                | 0153306            | Plant and animal Maritime                   | -                            | 3(2+1)              |
|                | 0153308            | Aquaculture                                 | 0153303                      | 3(2+1)              |
|                | 0153310            | Fish Biology                                | 0153303                      | 2(1+1)              |
|                | 0153312            | Fish breeding                               | 0153303<br>0155351           | 2(1+1)              |
|                | 0153314            | Aquaculture of Crustaceans and Molluscs     | 0153303                      | 3(2+1)              |
| <b>Level 7</b> | 0153402            | Seminar                                     | -                            | 1(1+0)              |
|                | 0153404            | Special Studies                             | -                            | 2(0+2)              |
|                | 0153406            | Planktons and productivity                  | 0153306                      | 2(1+1)              |
|                | 0153408            | Food and Nutrition of Fish                  | 0153329                      | 3(2+1)              |
|                | 0153410            | Environmental Marine                        | -                            | 3(2+1)              |
|                | 0153412            | Fish Diseases                               | 0153304                      | 2(1+1)              |
|                | 0153414            | Fish Reproduction                           | 0153308                      | 3(2+1)              |
|                | 0153416            | Fishery Planning and Management             | 0153310                      | 2(2+0)              |

|                    |         |                      |                                  |        |
|--------------------|---------|----------------------|----------------------------------|--------|
| <b>Level<br/>8</b> | 0153400 | Cooperative Training | Completion of<br>levels 5, 6 & 7 | 9(9+0) |
|--------------------|---------|----------------------|----------------------------------|--------|

## Department of Animal and Fishery Production Sciences

### BSc. Ruminants Sciences Program (Study Plan)

| Level          | Course Code | Course Title                                | Pre-Requisite Courses | Credit Hours |
|----------------|-------------|---------------------------------------------|-----------------------|--------------|
| <b>Level 1</b> | 0151101     | Introduction to Statistical Science         | -                     | 2(1+1)       |
|                | 0158101     | Introduction to Computer                    | -                     | 3(2+1)       |
|                | 0201101     | Islamic Culture                             | -                     | 2(2+0)       |
|                | 0815160     | General Chemistry                           | -                     | 4(3+1)       |
|                | 0817160     | General Mathematics                         | -                     | 3(2+1)       |
|                | 1700101     | English Language                            | -                     | 3(3+0)       |
| <b>Level 2</b> | 0151102     | Introduction to Economics                   | -                     | 3(2+1)       |
|                | 0201251     | Faith and Ethics in Islam                   | -                     | 2(2+0)       |
|                | 0814161     | General Physics                             | -                     | 4(3+1)       |
|                | 0816163     | General Biology                             | -                     | 4(3+1)       |
|                | 1701103     | Scientific English Language                 | 1700101               | 3(3+0)       |
| <b>Level 3</b> | 0153201     | Principles of Animal and Fishery Production | -                     | 3(2+1)       |
|                | 0156201     | Fundamental of Plant Production             | 0816163               | 3(2+1)       |
|                | 0157201     | Principles of Food Science and Nutrition    | -                     | 3(2+1)       |
|                | 0201351     | Economical System in Islam                  | -                     | 2(2+0)       |
|                | 0202111     | Writing and Composition                     | -                     | 2(2+0)       |
|                | 0815161     | Organic Chemistry                           | 0815160               | 3(2+1)       |
| <b>Level 4</b> | 0151202     | Communication and Learning Skills           | -                     | 2(2+0)       |
|                | 0154202     | Environment and Natural Resources           | -                     | 3(2+1)       |
|                | 0155202     | Principles of Biotechnology                 | -                     | 3(2+1)       |
|                | 0158202     | Agriculture System Engineering              | -                     | 3(2+1)       |
|                | 0201401     | Political System in Islam                   | -                     | 2(2+0)       |
|                | 0815163     | Biochemistry                                | 0815161               | 3(2+1)       |
| <b>Level 5</b> | 0151300     | Research Methods                            | -                     | 1(1+0)       |
|                | 0153303     | Introduction to Fishery production          | -                     | 3(2+1)       |
|                | 0153327     | Introduction to poultry production          | -                     | 3(2+1)       |
|                | 0153329     | Principles of Animal Nutrition              | -                     | 3(2+1)       |
|                | 0153351     | Introduction to Ruminant production         | -                     | 3(2+1)       |
|                | 0153353     | Biostatistics and experimental design       | 151101                | 3(2+1)       |
|                | 0155351     | Genetics                                    | -                     | 2(1+1)       |
| <b>Level 6</b> | 0153352     | Principles of Animal Breeding               | -                     | 2(1+1)       |
|                | 0153354     | Applied Ruminant Nutrition                  | 0153329               | 3(2+1)       |
|                | 0153356     | Animal Physiology                           | -                     | 3(2+1)       |
|                | 0153358     | Dairy and Beef Cattle Production            | 0153201               | 3(2+1)       |
|                | 0153360     | Sheep and Goats Production                  | 0153201               | 3(1+0)       |
|                | 0153362     | Camel Production                            | 0153201               | 2(1+1)       |
|                | 0153364     | Animal Behavior                             | 0153201               | 2(1+1)       |
| <b>Level 7</b> | 0151332     | Agricultural Marketing                      | -                     | 3(3+0)       |
|                | 0153402     | Seminar                                     | -                     | 1(1+0)       |
|                | 0153404     | Special Studies                             | -                     | 2(0+2)       |
|                | 0153452     | Physiology of Reproduction                  | 0153356               | 3(2+1)       |
|                | 0153454     | Animal Genetics and Breeding                | 0153352               | 3(2+1)       |
|                | 0153456     | Forage Evaluation                           | 0153329               | 2(1+1)       |

|                    |         |                                         |                                  |        |
|--------------------|---------|-----------------------------------------|----------------------------------|--------|
| <b>Level<br/>8</b> | 0153458 | Adaptation and Environmental Physiology | 0153356                          | 2(1+1) |
|                    | 0153460 | Animal hygiene and Health               | 0153356                          | 2(1+1) |
|                    | 0153400 | Cooperative Training                    | Completion of<br>levels 5, 6 & 7 | 9(9+0) |



## Department of Agricultural Systems Engineering

### BSc. Food Process Engineering Program (Study Plan)

| Level          | Course Code | Course Title                                | Pre-Requisite Courses | Credit Hours |
|----------------|-------------|---------------------------------------------|-----------------------|--------------|
| <b>Level 1</b> | 0151101     | Introduction to Statistical Science         | -                     | 2(1+1)       |
|                | 0158101     | Introduction to Computer                    | -                     | 3(2+1)       |
|                | 0201101     | Islamic Culture                             | -                     | 2(2+0)       |
|                | 0815160     | General Chemistry                           | -                     | 4(3+1)       |
|                | 0817160     | General Mathematics                         | -                     | 3(2+1)       |
|                | 1700101     | English Language                            | -                     | 3(3+0)       |
| <b>Level 2</b> | 0151102     | Introduction to Economics                   | -                     | 3(2+1)       |
|                | 0201251     | Faith and Ethics in Islam                   | -                     | 2(2+0)       |
|                | 0814161     | General Physics                             | -                     | 4(3+1)       |
|                | 0816163     | General Biology                             | -                     | 4(3+1)       |
|                | 1701103     | Scientific English Language                 | 1700101               | 3(3+0)       |
| <b>Level 3</b> | 0153201     | Principles of Animal and Fishery Production | -                     | 3(2+1)       |
|                | 0156201     | Fundamental of Plant Production             | 0816163               | 3(2+1)       |
|                | 0157201     | Principles of Food Science and Nutrition    | -                     | 3(2+1)       |
|                | 0201351     | Economical System in Islam                  | -                     | 2(2+0)       |
|                | 0202111     | Writing and Composition                     | -                     | 2(2+0)       |
|                | 0815161     | Organic Chemistry                           | 0815160               | 3(2+1)       |
| <b>Level 4</b> | 0151202     | Communication and Learning Skills           | -                     | 2(2+0)       |
|                | 0154202     | Environment and Natural Resources           | -                     | 3(2+1)       |
|                | 0155202     | Principles of Biotechnology                 | -                     | 3(2+1)       |
|                | 0158202     | Agriculture System Engineering              | -                     | 3(2+1)       |
|                | 0201401     | Political System in Islam                   | -                     | 2(2+0)       |
|                | 0815163     | Biochemistry                                | 0815161               | 3(2+1)       |
| <b>Level 5</b> | 151300      | Research Methods                            | -                     | 1(1+0)       |
|                | 158301      | Engineering Mathematics                     | -                     | 3(2+1)       |
|                | 158303      | Thermodynamics and Heat Transfer            | 0817160               | 3(2+1)       |
|                | 158327      | Engineering Mechanics                       | 0817161               | 3(2+1)       |
|                | 158329      | Engineering Drawing by AutoCAD              | 0817161               | 2(1+1)       |
|                | 158331      | Workshops and Technical Principles          | 0158101               | 3(2+1)       |
|                | 158351      | Measurements and Control Devices            | 0158202               | 3(2+1)       |
| <b>Level 6</b> | 158302      | Differential Equations                      | 0158101<br>0814161    |              |
|                | 158304      | Food Process Engineering                    | -                     |              |
|                | 158306      | Food Materials Properties                   | -                     |              |
|                | 158308      | Automatic Control in Food Factories         | -                     |              |
|                | 158352      | Programming in Systems Engineering          | -                     |              |
|                | 158354      | Engineering Projects Management             | -                     |              |
| <b>Level 7</b> | 158402      | Seminar                                     | -                     | -            |

|                |        |                                               |                               |        |
|----------------|--------|-----------------------------------------------|-------------------------------|--------|
|                | 158404 | Special Studies                               | -                             | -      |
|                | 158406 | Mechanical Processes of Food Processing       | 0817160                       |        |
|                | 158408 | Maintenance of Equipment and Production Lines | 0817161                       |        |
|                | 158410 | Treating the Waste of Food Factories          | 0817161                       |        |
|                | 158412 | Food Materials Storage Engineering            | 0158101                       |        |
|                | 158454 | Air Pollution Engineering                     | 0158202                       |        |
| <b>Level 8</b> | 158400 | Cooperative Training                          | Completion of levels 5, 6 & 7 | 9(0+9) |

### Department of Food and Nutrition Sciences

#### BSc. Food Science and Technology Program (Study Plan)

| Level          | Course Code | Course Title                                | Pre-Requisite Courses | Credit Hours |
|----------------|-------------|---------------------------------------------|-----------------------|--------------|
| <b>Level 1</b> | 0151101     | Introduction to Statistical Science         | -                     | 2(1+1)       |
|                | 0158101     | Introduction to Computer                    | -                     | 3(2+1)       |
|                | 0201101     | Introduction to Islamic Culture             | -                     | 2(2+0)       |
|                | 0815160     | General Chemistry                           | -                     | 4(3+1)       |
|                | 0817160     | General Mathematics                         | -                     | 3(2+1)       |
|                | 1700101     | English Language                            | -                     | 3(3+0)       |
| <b>Level 2</b> | 0151102     | Introduction to Economics                   | -                     | 3(2+1)       |
|                | 0201251     | Faith and Ethics in Islam                   | -                     | 2(2+0)       |
|                | 0814161     | General Physics                             | -                     | 4(3+1)       |
|                | 0816163     | General Biology                             | -                     | 4(3+1)       |
|                | 1701103     | Scientific English Language                 | -                     | 3(3+0)       |
| <b>Level 3</b> | 0153201     | Principles of Animal and Fishery Production | -                     | 3(2+1)       |
|                | 0156201     | Principles of Plant Production              | -                     | 3(2+1)       |
|                | 0157201     | Principles of Food Science and Nutrition    | -                     | 3(2+1)       |
|                | 0201351     | Economical System in Islam                  | -                     | 2(2+0)       |
|                | 0202111     | Writing and Composition                     | -                     | 2(2+0)       |
|                | 0815161     | Organic Chemistry                           | -                     | 3(2+1)       |
| <b>Level 4</b> | 0151202     | Communication and Learning Skills           | -                     | 2(2+0)       |
|                | 0154202     | Environment and Natural Resources           | -                     | 3(2+1)       |
|                | 0155202     | Fundamentals of Biotechnology               | -                     | 3(2+1)       |
|                | 0158202     | Agriculture System Engineering              | -                     | 3(2+1)       |
|                | 0201401     | Political and Social System in Islam        | -                     | 2(2+0)       |
| <b>Level 5</b> | 0151300     | Research Methods                            | -                     | 1(1+0)       |
|                | 0157303     | General Microbiology                        | 0816163               | 3(2+1)       |
|                | 0157305     | Food Preservation                           | 0157201               | 3(2+1)       |
|                | 0157307     | Food Chemistry and Analysis                 | 0815161<br>0815163    | 4(3+1)       |
|                | 0157309     | Principles of Dairy Sciences                | -                     | 3(2+1)       |
|                | 0157327     | Nutrition and Public Health                 | -                     | 2(2+0)       |
|                | 0157329     | Food Service Systems                        | -                     | 2(2+0)       |
| <b>Level 6</b> | 0151332     | Agricultural Marketing                      |                       | 3(3+0)       |
|                | 0157304     | Food Microbiology                           | 0157303               | 3(2+1)       |
|                | 0157306     | Dates Technology                            | 0157201               | 3(2+1)       |
|                | 0157308     | Fat and Oil Technology                      | 0157201               | 2(1+1)       |
|                | 0157310     | Dairy Technology                            | 0157309               | 4(3+1)       |
|                | 0158310     | Fundamentals of Food Process Engineering    | -                     | 3(2+1)       |
| <b>Level 7</b> | 0155326     | Food Biotechnology                          | 0157304               | 3(2+1)       |
|                | 0157402     | Seminar                                     | -                     | 1(1+0)       |
|                | 0157404     | Special Studies                             | -                     | 2(0+2)       |
|                | 0157406     | Food Safety and Quality Control             | 0157303               | 3(2+1)       |
|                | 0157408     | Meat and Fish Technology                    | 0157201               | 3(2+1)       |
|                | 0157410     | Cereal Technology                           | 0157201               | 3(2+1)       |
|                | 0157412     | Fruit and Vegetable Technology              | 0157201               | 3(2+1)       |

|                    |         |                      |                                  |        |
|--------------------|---------|----------------------|----------------------------------|--------|
| <b>Level<br/>8</b> | 0157400 | Cooperative Training | Completion of levels<br>5, 6 & 7 | 9(9+0) |
|--------------------|---------|----------------------|----------------------------------|--------|

## Department of Food and Nutrition Sciences

### BSc. Nutrition Sciences Program (Study Plan)

| Level          | Course Code | Course Title                                | Pre-Requisite Courses | Credit Hours |
|----------------|-------------|---------------------------------------------|-----------------------|--------------|
| <b>Level 1</b> | 0151101     | Introduction to Statistical Science         | -                     | 2(1+1)       |
|                | 0158101     | Introduction to Computer                    | -                     | 3(2+1)       |
|                | 0201101     | Islamic Culture                             | -                     | 2(2+0)       |
|                | 0815160     | General Chemistry                           | -                     | 4(3+1)       |
|                | 0817160     | General Mathematics                         | -                     | 3(2+1)       |
|                | 1700101     | English Language                            | -                     | 3(3+0)       |
| <b>Level 2</b> | 0151102     | Introduction to Economics                   | -                     | 3(2+1)       |
|                | 0201251     | Faith and morals                            | -                     | 2(2+0)       |
|                | 0814161     | General Physics                             | -                     | 4(3+1)       |
|                | 0816163     | General Biology                             | -                     | 4(3+1)       |
|                | 1701103     | Scientific English Language                 | 1700101               | 3(3+0)       |
| <b>Level 3</b> | 0153201     | Principles of Animal and Fishery Production | -                     | 3(2+1)       |
|                | 0156201     | Principles of Plant Production              | -                     | 3(2+1)       |
|                | 0157201     | Principles of Food Science and Nutrition    | -                     | 3(2+1)       |
|                | 0201351     | Economical System in Islam                  | -                     | 2(2+0)       |
|                | 0202111     | Writing and Composition                     | -                     | 2(2+0)       |
|                | 0815161     | Organic Chemistry                           | 0815160               | 3(2+1)       |
| <b>Level 4</b> | 0151202     | Communication and Learning Skills           | -                     | 2(2+0)       |
|                | 0154202     | Environment and Natural Resources           | -                     | 3(2+1)       |
|                | 0155202     | Fundamentals of Biotechnology               | -                     | 3(2+1)       |
|                | 0158202     | Agriculture System Engineering              | -                     | 3(2+1)       |
|                | 0201401     | Political System in Islam                   | -                     | 2(2+0)       |
|                | 0815163     | Biochemistry                                | 0815161               | 3(2+1)       |
| <b>Level 5</b> | 0151300     | Research Methods                            | -                     | 1(1+0)       |
|                | 0157303     | General Microbiology                        | 0815163               | 3(2+1)       |
|                | 0157305     | Food Preservation                           | 0157201               | 3(2+1)       |
|                | 0157307     | Food Chemistry and Analysis                 | 0815163               | 4(3+1)       |
|                | 0157309     | Principles of Dairy Sciences                | -                     | 3(2+1)       |
|                | 0157327     | Nutrition and Public Health                 | -                     | 2(2+0)       |
|                | 0157329     | Food Service Systems                        | -                     | 2(2+0)       |
| <b>Level 6</b> | 0157304     | Food Microbiology                           | 0157303               | 3(2+1)       |
|                | 0157326     | Food Preparation                            | -                     | 3(2+1)       |
|                | 0157328     | Physiology                                  | 0816163               | 3(2+1)       |
|                | 0157330     | Nutrition (1)                               | -                     | 3(2+1)       |
|                | 0157332     | Community Nutrition                         | -                     | 3(2+1)       |
| <b>Level 7</b> | 0157334     | Clinical Nutrition                          | -                     | 3(2+1)       |
|                | 0157326     | Food Preparation                            | -                     | 3(2+1)       |
|                | 0157328     | Physiology                                  | 0816163               | 3(2+1)       |
|                | 0157330     | Nutrition (1)                               | -                     | 3(3+0)       |
|                | 0157332     | Community Nutrition                         | -                     | 3(2+1)       |
|                | 0157334     | Clinical Nutrition                          | -                     | 3(2+1)       |
|                | 0157400     | Cooperative Training                        | Pass 100 credit Hours | 9(9+0)       |

|                    |         |                             |         |        |
|--------------------|---------|-----------------------------|---------|--------|
| <b>Level<br/>8</b> | 0157402 | Seminar                     | -       | 1(1+0) |
|                    | 0157404 | Special Studies             | -       | 2(2+0) |
|                    | 0157406 | Food Quality and Safety     | 0157303 | 3(3+0) |
|                    | 0157426 | Nutrition (2)               | -       | 3(3+0) |
|                    | 0157428 | Nutrition during life cycle | 0157327 | 3(3+0) |
|                    | 0157430 | Diet Planning               | 0157326 | 3(2+1) |
|                    | 0157432 | Nutrition Education         | 0157332 | 3(3+0) |

**Department of Environment and Natural Resources**

**BSc. Water Science Program (Study Plan)**

| <b>Level</b> | <b>Course Code</b> | <b>Course Title</b>                            | <b>Pre-Requisite Courses</b> | <b>Credit Hours</b> |
|--------------|--------------------|------------------------------------------------|------------------------------|---------------------|
| Level 1      | 0151101            | Introduction to Statistical Science            | -                            | 2(1+1)              |
|              | 0158101            | Introduction to Computer                       | -                            | 3(2+1)              |
|              | 0201101            | Introduction to Islamic Culture                | -                            | 2(2+0)              |
|              | 0815160            | General Chemistry                              | -                            | 4(3+1)              |
|              | 0817160            | General Mathematics                            | -                            | 3(2+1)              |
|              | 1700101            | English Language                               | -                            | 3(3+0)              |
| Level 2      | 0151102            | Introduction to Economics                      | -                            | 3(2+1)              |
|              | 0201251            | Faith and Ethics in Islam                      | -                            | 2(2+0)              |
|              | 0814161            | General Physics                                | -                            | 4(3+1)              |
|              | 0816163            | General Biology                                | -                            | 4(3+1)              |
|              | 1701103            | Scientific English Language                    | 1700101                      | 3(3+0)              |
| Level 3      | 0153201            | Principles of Animal Production and Fishery    | -                            | 3(2+1)              |
|              | 0156201            | Principles of Plant Production                 | -                            | 3(2+1)              |
|              | 0157201            | Principles of Food Science and Nutrition       | -                            | 3(2+1)              |
|              | 0201351            | Economical System in Islam                     | -                            | 2(2+0)              |
|              | 0202111            | Writing and Composition                        | -                            | 2(2+0)              |
|              | 0815161            | Organic Chemistry                              | 0815160                      | 3(2+1)              |
| Level 4      | 0151202            | Communication and Learning Skills              | -                            | 2(2+0)              |
|              | 0154202            | Environment and Natural Resources              | -                            | 3(2+1)              |
|              | 0155202            | Fundamentals of Biotechnology                  | -                            | 3(2+1)              |
|              | 0158202            | Agriculture System Engineering                 | -                            | 3(2+1)              |
|              | 0201401            | Political and Social System in Islam           | -                            | 2(2+0)              |
|              | 0815163            | Biochemistry                                   | 0815161                      | 3(2+1)              |
| Level 5      | 0151300            | Research Methods                               | -                            | 1(1+0)              |
|              | 0154301            | Introduction to Remote Sensing                 | 0814161                      | 2(1+1)              |
|              | 0154303            | Introduction to Geographic Information Systems | -                            | 2(1+1)              |
|              | 0154327            | Principles of Geology                          | -                            | 2(1+1)              |
|              | 0154329            | Physics of Agricultural Environment            | 0154202                      | 3(2+1)              |
|              | 0154331            | Chemistry of Agricultural Environment          | 0154202                      | 3(2+1)              |
|              | 0154351            | Principles of Hydrology                        | 0154202                      | 2(2+0)              |
|              | 0157303            | General Microbiology                           | 0816163                      | 3(2+1)              |
| Level 6      | 0154352            | Groundwater Hydrology                          | 0154327<br>0154351           | 3(2+1)              |
|              | 0154354            | Fluid Mechanics                                | 0814161<br>0817160           | 3(2+1)              |
|              | 0154356            | Survey and Land Settlement                     | -                            | 2(1+1)              |
|              | 0154358            | Principals of Irrigation and Drainage          | -                            | 3(2+1)              |
|              | 0154360            | Water Policy and Regulations                   | -                            | 1(1+0)              |
|              | 0154362            | The Water Pollution and Quality                | -                            | 2(2+0)              |
|              | 0158301            | Engineering Mathematics                        | 0817160                      | 4(3+1)              |
|              | 0154402            | Seminar                                        | 0151300                      | 1(1+0)              |
| Level 7      | 0154404            | Special Studies                                | 0151300                      | 2(0+2)              |
|              | 0154408            | Applications of Geographic Information Systems | 0154303                      | 2(1+1)              |
|              | 0154430            | Analysis of soil, water, plant and air         | 0154331                      | 3(2+1)              |

|            |         |                                            |                                  |        |
|------------|---------|--------------------------------------------|----------------------------------|--------|
|            | 0154452 | Wastewater Treatment                       | 0157303                          | 3(2+1) |
|            | 0154454 | Well Hydraulic and pumps                   | 0154352<br>0154354               | 2(1+1) |
|            | 0154456 | Design of irrigation and drainage systems  | 0154354<br>0154358               | 3(2+1) |
|            | 0154458 | Water Resources Management and Development | 0154351                          | 2(2+0) |
| Level<br>8 | 0154400 | Cooperative Training                       | Completion of levels<br>5, 6 & 7 | 9(9+0) |



## Department of Arid Land Agriculture

### BSc. Plant Protection Sciences Program (Study Plan)

| Level          | Course Code | Course Title                                | Pre-Requisite Courses | Credit Hours |
|----------------|-------------|---------------------------------------------|-----------------------|--------------|
| <b>Level 1</b> | 0151101     | Introduction to Statistical Science         | -                     | 2(1+1)       |
|                | 0158101     | Introduction to Computer                    | -                     | 3(2+1)       |
|                | 0201101     | Islamic Culture                             | -                     | 2(2+0)       |
|                | 0815160     | General Chemistry                           | -                     | 4(3+1)       |
|                | 0817160     | General Mathematics                         | -                     | 3(2+1)       |
|                | 1700101     | English Language                            | -                     | 3(3+0)       |
| <b>Level 2</b> | 0151102     | Introduction to Economics                   | -                     | 3(2+1)       |
|                | 0201251     | Faith and Ethics in Islam                   | -                     | 2(2+0)       |
|                | 0814161     | General Physics                             | -                     | 4(3+1)       |
|                | 0816163     | General Biology                             | -                     | 4(3+1)       |
|                | 1701103     | Scientific English Language                 | 1700101               | 3(3+0)       |
| <b>Level 3</b> | 0153201     | Principles of Animal and Fishery Production | -                     | 3(2+1)       |
|                | 0156201     | Fundamental of Plant Production             | -                     | 3(2+1)       |
|                | 0157201     | Principles of Food Science and Nutrition    | -                     | 3(2+1)       |
|                | 0201351     | Economical System in Islam                  | -                     | 2(2+0)       |
|                | 0202111     | Writing and Composition                     | -                     | 2(2+0)       |
|                | 0815161     | Organic Chemistry                           | -                     | 3(2+1)       |
| <b>Level 4</b> | 0151202     | Communication and Learning Skills           | -                     | 2(2+0)       |
|                | 0154202     | Environment and Natural Resources           | -                     | 3(2+1)       |
|                | 0155202     | Principles of Biotechnology                 | -                     | 3(2+1)       |
|                | 0158202     | Agriculture System Engineering              | -                     | 3(2+1)       |
|                | 0201401     | Political System in Islam                   | -                     | 2(2+0)       |
|                | 0815163     | Biochemistry                                | -                     | 3(2+1)       |
| <b>Level 5</b> | 0151300     | Research Methods                            | -                     | 1(1+0)       |
|                | 0155351     | Genetics                                    | 0155202               | 2(1+1)       |
|                | 0156303     | Horticultural Production                    | 0126201               | 2(1+1)       |
|                | 0156305     | Organic Agriculture                         | 0126201               | 2(1+1)       |
|                | 0156327     | Crops Production                            | 0126201               | 3(2+1)       |
|                | 0156351     | General Plant pathology                     | 0126201               | 3(2+1)       |
|                | 0156353     | General Entomology                          | 0126201               | 3(2+1)       |
|                | 0156355     | General pesticides                          | 0815161               | 2(1+1)       |
| <b>Level 6</b> | 0156326     | Plant Physiology                            | 0156201               | 2(1+1)       |

|                |         |                                        |                               |        |
|----------------|---------|----------------------------------------|-------------------------------|--------|
|                | 0156352 | Integrated Pest Management             | 0156351<br>0156353<br>0156355 | 3(2+1) |
|                | 0156354 | Economic Entomology (1)                | 0156353                       | 3(2+1) |
|                | 0156356 | Plant bacterial Diseases               | 0156351                       | 2(1+1) |
|                | 0156358 | Plant virus Diseases                   | 0156351                       | 3(2+1) |
|                | 0156360 | Pesticides and Environmental Pollution | 0156355                       | 2(1+1) |
|                | 0156362 | Nematology                             | 0156351                       | 3(2+1) |
| <b>Level 7</b> | 0156402 | Discussion                             | 0156352                       | 1(1+0) |
|                | 0156404 | Special Studies                        | 0156352                       | 2(0+2) |
|                | 0156452 | Pest Ecology                           | 0156351<br>0156353            | 2(1+1) |
|                | 0156454 | Chemistry and analysis of pesticides   | 0156355                       | 2(1+1) |
|                | 0156456 | Plant fungal diseases                  | 0156351                       | 3(2+1) |
|                | 0156458 | Apiculture                             | 0156353                       | 3(2+1) |
|                | 0156460 | Economic Entomology (2)                | 0156353                       | 3(2+1) |
|                | 0156462 | Toxicology of pesticides               | 0156355                       | 2(1+1) |
| <b>Level 8</b> | 0156400 | Cooperative Training                   | Completion of levels 5, 6 & 7 | 9(0+9) |

## Department of Plant Biotechnology

### BSc. Plant Biotechnology Program (Study Plan)

| Level          | Course Code | Course Title                                | Pre-Requisite Courses | Credit Hours |
|----------------|-------------|---------------------------------------------|-----------------------|--------------|
| <b>Level 1</b> | 0151101     | Introduction to Statistical Science         | -                     | 2(1+1)       |
|                | 0158101     | Introduction to Computer                    | -                     | 3(2+1)       |
|                | 0201101     | Islamic Culture                             | -                     | 2(2+0)       |
|                | 0815160     | General Chemistry                           | -                     | 4(3+1)       |
|                | 0817160     | General Mathematics                         | -                     | 3(2+1)       |
|                | 1700101     | English Language                            | -                     | 3(3+0)       |
| <b>Level 2</b> | 0151102     | Introduction to Economics                   | -                     | 3(2+1)       |
|                | 0201251     | Faith and Ethics in Islam                   | -                     | 2(2+0)       |
|                | 0814161     | General Physics                             | -                     | 4(3+1)       |
|                | 0816163     | General Biology                             | -                     | 4(3+1)       |
|                | 1701103     | Scientific English Language                 | 1700101               | 3(3+0)       |
| <b>Level 3</b> | 0153201     | Principles of Animal and Fishery Production | -                     | 3(2+1)       |
|                | 0156201     | Fundamental of Plant Production             | -                     | 3(2+1)       |
|                | 0157201     | Principles of Food Science and Nutrition    | -                     | 3(2+1)       |
|                | 0201351     | Economical System in Islam                  | -                     | 2(2+0)       |
|                | 0202111     | Writing and Composition                     | -                     | 2(2+0)       |
|                | 0815161     | Organic Chemistry                           | -                     | 3(2+1)       |
| <b>Level 4</b> | 0151202     | Communication and Learning Skills           | -                     | 2(2+0)       |
|                | 0154202     | Environment and Natural Resources           | -                     | 3(2+1)       |
|                | 0155202     | Principles of Biotechnology                 | -                     | 3(2+1)       |
|                | 0158202     | Agriculture System Engineering              | -                     | 3(2+1)       |
|                | 0201401     | Political System in Islam                   | -                     | 2(2+0)       |
|                | 0815163     | Biochemistry                                | -                     | 3(2+1)       |
| <b>Level 5</b> | 0151300     | Research Methods                            | -                     | 1(1+0)       |
|                | 0155351     | Genetics                                    | 0155202               | 2(2+1)       |
|                | 0155353     | Principles of Genetic Engineering           | 0155202               | 2(1+1)       |
|                | 0155355     | Ethics and Biosafety                        | 0155202               | 1(1+0)       |
|                | 0155357     | Applied Biochemistry                        | 0815163               | 3(2+1)       |
|                | 0155359     | Cell Biology                                | 0816163               | 3(2+1)       |
|                | 0157303     | Microbiology                                | 0816163               | 3(2+1)       |
|                | 0153353     | Biostatistics and Experimental Design       | 0151101               | 3(2+1)       |
| <b>Level 6</b> | 0155352     | Molecular Biology                           | 0155353               | 3(2+1)       |
|                | 0155354     | Bioinformatics                              | 0155353               | 2(1+1)       |

|                |         |                                               |                               |        |
|----------------|---------|-----------------------------------------------|-------------------------------|--------|
|                | 0155356 | Plant Physiology, Growth, and Development     | 0155359                       | 3(2+1) |
|                | 0155358 | Plant Micropropagation                        | 0155359                       | 3(2+1) |
|                | 0155360 | Genetic Techniques in Plant Breeding          | 0155351                       | 2(1+1) |
|                | 0155362 | Plant Genetic Transformation                  | 0155351                       | 3(2+1) |
|                | 0155364 | Plant Histology Techniques                    | 0155359                       | 2(1+1) |
| <b>Level 7</b> | 0155402 | Independent Study                             |                               | 2(0+2) |
|                | 0155404 | Seminar                                       |                               | 1(0+1) |
|                | 0155428 | Genetically Modified Food                     | 0155362                       | 3(2+1) |
|                | 0155452 | Molecular Genetics                            | 0155354                       | 2(1+1) |
|                | 0155454 | Nanobiotechnology                             | 0155354                       | 1(0+1) |
|                | 0155456 | Plant Molecular Physiology                    | 0155356                       | 3(2+1) |
|                | 0155458 | Molecular population genetics                 | 0155360                       | 3(2+1) |
|                | 0155460 | Applications of Plant Cell and Tissue Culture | 0155358                       | 3(2+1) |
| <b>Level 8</b> | 0156400 | Cooperative Training                          | Completion of levels 5, 6 & 7 | 9(0+9) |