Department of food safety

Overview:

Dr. Mohammed Ariful Islam

Professor and Coordinator

Welcome to the department of food safety!

We are dedicated to ensuring the highest standards of food safety and quality for the well-being of our community. Our mission is to protect public health by preventing foodborne illness and promoting safe food practices through rigorous inspection, education, and regulation. Together, we work to create a safe and healthy environment to all.

Total Credit	47 Credits
Vision	The vision of ***MS in Food Safety*** is to develop graduates in order to promote and ensure food safety management practices in the Food Business Operators (FBOs).
Mission	The mission of ***MS in Food Safety*** is to provide high-quality education with integrity to preparing graduates for excellent careers in the food industry.
Program Description	Food safety has become increasingly important due to the globalization of the food supply chain and increased (national and international) trade. Food contamination and adulteration also create enormous challenges resulting in unsafe food, public health risks and food-borne diseases. Furthermore, increasing agricultural production, especially bumper harvesting, cannot be appropriately utilized due to a lack of appropriate supply chain management. Therefore, this program aims to educate graduates to analyze and improve food safety management systems to ensure the public health and address market (local and export) needs. This interdisciplinary program is designed to prepare graduates for a career as food safety managers, researchers, policymakers, or food legislators. Graduates will find jobs in the food and retail industry, research institutions, public organizations, food safety authorities.
Program Objectives	After successful completion of this MS program, graduates are able to: 1. Identify physio-chemical, biological hazards and adulteration in food; 2. Analyze the risk (e.g., RA, RM, RC) related food safety; 3. Apply GAP, HACCP, GMP related practices in FBOs and food supply chain; 4. Inspect and audit FBOs; 5. Implement Food Laws and Regulations (e.g., Codex, IPPC, OIE, Bangladesh Food Safety Act'2013) in FBOs;

	6. Perform qualitative and quantitative food safety related research (basic and applied); 7. Negotiate with local and international regulators for implementing food safety practices in FBOs; 8. Plan and develop training manual for facilitating various trainings at FBOs, 9. Build and operate food business start-up, 10. Determine the composition of food, use of additives and preservatives.
Qualification	B.Sc in Agriculture, Fisheries, Animal Husbandry & Veterinary Medicine, Agricultural Economics, Agri-business Management, Agricultural Engineering,

Teachers:

Dr. Mohammed Ariful Islam

Professor and Coordinator

Contact info:

Department of Agricultural Chemistry

Faculty of Agriculture

Phone: +88 01718189343

E-mail: arif.sau.agch@gmail.com

Blood Group: B positive

Link for other information: https://sau.edu.bd/teacher/41

Dr. Nazneen Sultana

Professor

Contact Info:

Department of Plant Pathology

Faculty of Agriculture

Phone: +8801733955171

E-mail: nazneensau@yahoo.com, nazneen@sau.edu.bd

Blood Group: AB+ve

Link for other info: https://sau.edu.bd/teacher/194

Md. Mahbubul Alam, Ph.D

Professor

Contact Info:

Department of Agricultural Extension and Information System

Faculty of Agriculture

Phone: +88-01711973825

E-mail: mmahbubul_22@yahoo.com, mahbubul.alam@sau.edu.bd

Blood Group: A+

Link for other info: https://sau.edu.bd/teacher/73

Dr. Md. Sirajul Islam Khan

Professor

Contact Info:

Department of Agricultural Chemistry

Faculty of Agriculture

Phone: +8801755879437

E-mail: sirajsau@gmail.com, sirajsau@sau.edu.bd

Blood Group: O+ve

Link for other info: https://sau.edu.bd/teacher/42

Dr. Md. Tazul Islam Chowdhury

Professor

Contact Info:

Department of Agricultural Chemistry

Faculty of Agriculture

Phone: 01706064214

E-mail: mticsau@yahoo.com, tazulagch@sau.edu.bd

Blood Group: A+

Link for other info: https://sau.edu.bd/teacher/37

Abu Noman Faruq Ahmmed

Professor

Contact Info:

Department of Plant Pathology

Faculty of Agriculture

Phone: +8801819823030

E-mail: nomanfarook@yahoo.com, nomanfarooksau@gmail.com

Blood Group: O +ve

Link fo other info: https://sau.edu.bd/teacher/199

Dr. Md. Saiful Islam

Professor

Contact Info:

Department of Animal Production and Management

Faculty of Animal Science & Veterinary Medicine

Phone: +88-01725434279

E-mail: saiful.sau.apma@gmail.com, saiful.apma@sau.edu.bd

Blood Group: B(+ve)

Link for other info: https://sau.edu.bd/teacher/235

Dr. Jasim Uddain

Professor

Contact Info:

Department of Horticulture

Faculty of Agriculture

Phone: 01716611706

E-mail: uddain.jasim@gmail.com, jasimhort@sau.edu.bd

Blood Group: A (+ve)

Link for other info: https://sau.edu.bd/teacher/179

Dr. Md. Sadique Rahman

Professor

Contact Info:

Department of Agricultural Finance and Management

Faculty of Agribusiness Management

Phone: +88 01712104992

E-mail: sadique@sau.edu.bd, saadrhmn@yahoo.com

Blood Group: B +ve

Link for other info: https://sau.edu.bd/teacher/304

Dr.Mahfuzul Islam

Associate Professor

Contact Info:

Department of Microbiology and Parasitology

Faculty of Animal Science & Veterinary Medicine

Phone: 8801717364047

E-mail: mislam.micro.sau@gmail.com, mislam.mipa@sau.edu.bd

Blood Group: B+

Link for other info: https://sau.edu.bd/teacher/252

Dr. Maksuda Begum

Assistant professor

Contact Info:

Department of Poultry Science

Faculty of Animal Science & Veterinary Medicine

Phone: 8801790231994

E-mail: maksudashovona80@gmail.com, maksudashovona80@gmail.com

Blood Group: B+

Link for other info: https://sau.edu.bd/teacher/265

Dr. Md. Mohibbullah

Assistant Professor and Chairman

Contact Info:

Department of Fishing and Post Harvest Technology

Faculty of Fisheries, Aquaculture and Marine Science

Phone: +8801996805098

E-mail: mmohib.fpht@sau.edu.bd, mmohib08@gmail.com

Blood Group: O+

Ink for other info: https://sau.edu.bd/teacher/321

Course Name:

Course Names
MSFS 501 Fundamentals of food (C)
MSFS 502 Food Law and Regulations (c)
MSFS 503 Food Processing and Manufacturing Technology (C)
MSFS 504 Food Microbiology (C)
MSFS 505 Food Safety Risk Management (C)
MSFS 506 Research Methods of Food Safety (C)
MSFS 507 Food Analysis (O)
MSFS 508 Food Business Management (o)
MSFS 509 Safety Aspects of Food (O)
MSFS 510 Food Toxicology (O)
MSFS 511 Food Quality Assurance (O)
MSFS 512 Food Fraud and Mitigation (O)

Course No./Course Code: MSFS 501

Course Objectives and Course Summary:

The course is designed to develop students' basic understanding about food components and nutrition, energy value, food additives and preservatives, GMO and food nanotechnology. This course encompasses physiological and biochemical aspects of food, discusses relationship between metabolites and human health.

Course Learning Outcomes (CLOs)

i. Discuss about the food components, nutrients, balance diet and the functions of food in healthy life sustenance,
ii. Determine the composition of food, use of additives and preservatives,
iii. Illustrate the safety of genetic engineering and biotechnology in foods,
iv. Describe the uses of nanotechnology in food Safety.

Course No./Course Code: MSFS 502

Course Objectives and Course Summary:

The food domain is strictly regulated today both at national and international levels. It is also essential for increasingly sophisticated consumer demands. Food regulation covers all aspects of production, safety, hygiene, labelling, packaging, etc. It is increasingly difficult for the food industry, regulators and consultancies to keep up to date with all regulatory developments, mitigate legal exposure, and ensure compliance. Therefore, this course is designed to inform graduates latest legal aspects of food and food safety.

Course Learning Outcomes (CLOs)

i. Illustrate the importance of food law and regulations,
ii. Identify the State institutes in the food safety domain,
iii. Apply the food safety laws and regulations,
iv. Support in international trade requirement for Government and FBOs.

Course No./Course Code: MSFS 503

Course Objectives and Course Summary:

This course is designed to present students with techniques of manufacturing, processing, preserving, packaging and canning of foods. Moreover, it helps students to know the valorization of agro-food products. To fulfill the consumer needs, these courses provide the foundation to develop new techniques or strategy.

Course Learning Outcomes (CLOs)

i. Explore the principles of food processing and gain an understanding of both traditional and modern techniques
ii. Identify the reasons of food spoilages
iii. Apply different food processing techniques (e.g., pasteurization, sterilization, evaporation, refrigeration)
iv. Evaluate the quality of packaging, preservation and storage of different foods
v. Develop new techniques or strategy for value addition of the product

Course No./Course Code: MSFS 504

Course Objectives and Course Summary:

This course covers basic and applied aspects of microorganisms, their hazards and facilitating safer food for the consumer. It contains the characteristic of microbial growth; food spoilage; infection and intoxication of bacteria, virus, parasites and prions.

Course Learning Outcomes (CLOs)

i. Describe the important pathogen and spoilage microorganism in food,
ii. Analyze the problem of deterioration mechanisms in food,
iii. Evaluate the type of problem caused by pathogens and their solutions,
iv. Apply the knowledge of microbes to control and assure the quality of food products,
v. Make thoughtful recommendations about the Implementation of ethics of food science in practical situations.

Course No./Course Code: MSFS 505

Course Objectives and Course Summary:

This course will provide a general review of risk analysis to ensure food safety. The student will expect to demonstrate the fundamental knowledge of risk analysis including its components (e.g. risk assessment, risk management and risk communication). Students will also expect to be able to demonstrate sufficient knowledge about the major risk assessment methodologies and apply that knowledge for advanced risk analysis in the context of the food system, regulatory science, and public communication.

Course Learning Outcomes (CLOs)

vi. Illustrate the need of risk management in the changing global food safety system,
vii. Identify the components of risk analysis according to Codex,
viii. Utilize the process of risk management, risk assessment and risk communication,
ix. Assess the risk verses benefit analysis of food.

Course No./Course Code: MSFS 506

Course Objectives and Course Summary:

Research methodologies tell the systematic method for acquiring data and studying it for deriving out crucial findings. This is an important process that helps in solving problems and making decisions. Thus, the course is outlined to provide knowledge on different experimental and non-experimental designs, methods of collecting data, statistical analysis, testing appropriate hypothesis and meaningful interpretation of results that are applied in relation to food quality and safety.

Course Learning Outcomes (CLOs)

x. Describe and classify research methods, measurement of variables related to food safety,
xi. Apply different statistical analyses (i.e., descriptive, inferential) for food safety,
xii. Illustrate different experimental and non-experimental designs related to food safety research,
xiii. Collect and arrange the data of food analysis,
xiv. Analyze the data and test the hypothesis that support the food safety research,
xv. Evaluate and interpret the data that applied in research, government and industry.
xvi. Present the key findings, and inform the audience about contemporary food safety issues.

Course No./Course Code: MSFS 507

Course Objectives and Course Summary:

This course presents students with different laboratory techniques (qualitative and quantitative) in order to analyze biological and chemical hazards of food. This course is also help students to apply traditional and instrumental methods for determining contaminants or residues in foods (e.g., heavy metals, pesticides, mycotoxins, drug residues). In addition, students are expected to work in food safety related project where they will identify and critically assess the most appropriate analytical methods for analyzing food products.

Course Learning Outcomes (CLOs)

i. Understand the principles of food analysis by conducting various analytical techniques
ii. Identify physico-chemical and biological hazards of foods
iii. Perform qualitative and quantitative food safety related research
iv. Demonstrate competency in the use of standard analytical method to monitor microbiological and/or chemical hazards in food
v. Apply modern instrumental methods to analyze biological and chemical properties of foods.

Course No./Course Code: MSFS 508

Course Objectives and Course Summary:

The target of this course is for the students who want to start a new food business or want to manage operations at any FBOs. This course will present students with the management function of a commercial enterprise and its financial and economic aspects. Students are expected to learn various communication skills at business, identify and utilize the business opportunity, and value addition. Most importantly, this course would help them to build and operate a food business start-up.

Course Learning Outcomes (CLOs)

xvii. Differentiate styles of leadership and determine appropriate communication strategies for business operations,
xviii. Develop communication protocols for FBOs, and use communication for conflict management,
xix. Design HR strategy for FBOs, recruit and train staffs
xx. Plan and develop training manual for facilitating various trainings at FBOs,
xxi. Make use of computer and Internet-based tools for business communication and operations,
xxii. Apply basic operational and financial control systems,
xxiii. Set Key Performance Indicator (KPI) for FBOs,
xxiv. Analyze the value chain, and evaluate the economics of food business,
xxv. Analyze critical elements of food supply chain considering food safety aspects,

xxvi. Build and operate food business enterprises.

Course No./Course Code: MSFS 509

Course Objectives and Course Summary:

The target of this course is to provide the safety aspects of food production. This course is designed to focus some of the fundamental principles for food safety and food hygiene. Through this course students will learn about food safety specially Bangla GAP, food hygiene and traceability of food. Moreover, they will be expertise on grading and shelf life of milk, fish, meat and food products.

Course Learning Outcomes (CLOs)

- Discuss the fundamental principles of safe food production and hygiene.
- Identify the safety aspects of different food products
- Assess the quality and freshness of food products
- Judge the quality of milk, fish and meat and food products
- Plan and design of abattoir and small-scale slaughterhouse

Course No./Course Code: MSFS 510

Course Objectives and Course Summary:

The chronic consumption of different bioactive chemicals by food for the development of different adverse health effects is becoming extremely important today. The concern is getting more attention when food is travelling around the world and supply chain becomes more complex. This course will provide a general review of toxic substances related to food. The student will expected to understand and classify the nature, properties and effects of toxic substances in food and animal feed, including their adverse effects on humans. They will be able to evaluate the toxicity caused by chronic exposure of the pesticide residues, animal drug residues, heavy metals. Moreover, students will be able to justify the use of existing and newly emerging food toxicological issues at their work.

Course Learning Outcomes (CLOs)

a. Classify different kinds of toxicology, toxicity, toxicants,
b. Identify the plant toxins in crops and human food chain,
c. Differentiate food related allergies and intolerances, including their metabolic disorders related to food consumption
d. Evaluate the chronic toxicity of the pesticide, animal drugs, food additives and heavy metal residue in food,

Course No./Course Code: MSFS 511

Course Objectives and Course Summary:

Quality Assurance (QA) is a set of activities used by food companies to ensure that the process by which products are developed and produced meets a set of standards and specifications. The goal of quality assurance is to establish a system that will reduce and eliminate defects and risks in food manufacturing. The course is designed to expertise graduates in inspections, audits, certification to ensure quality and food safety.

Course Learning Outcomes (CLOs)

- Illustrate the importance of quality assurance
- Justify HACCP, ISOs and private standards in a food business,
- Apply good practices
- Support in international trade requirement for Government and FBOs.

Course No./Course Code: MSFS 512

Course Objectives and Course Summary:

Intentional adulteration of food is a deep-rooted social evil has been with us for millennia, but has become more advanced in the recent past. Food fraud occurs when a food supplier intentionally deceive its customer about the quality and contents of the foods they are purchasing. While food fraud is often motivated by profit, some forms of food fraud can also pose a direct threat to the health of the consumers. Detecting food fraud is a challenge because consumers alone cannot detect them, and food fraudsters are usually innovative in the ways they avoid detection. Moreover, consumers are nowadays also interested in where there food comes from and how it has been produced, which add value to the product. This aspect has led to a new kind of fraud, i.e. deception about geographical and production system origin. In Asia and the Pacific, the risk of food fraud is estimated to be high, due to the high demand for premium quality food combined with an increasingly globalized food supply chain. This course is designed to describe the key aspects of food fraud, and discusses a set of measures that authorities can take in order to stop the persistent problem of food fraud.

Course Learning Outcomes (CLOs)

i. Explain the concept of food fraud
ii. Describe the science-based framework
iii. Make use of methods for detection of common adulterants
iv. Develop a control plan and select relevant control measures to reduce the vulnerability.