




Bangladesh Open University

 SARD SCHOOL OF AGRICULTURE AND RURAL DEVELOPMENT কৃষি ও পল্লী উন্নয়ন স্কুল	School of Agriculture and Rural Development (SARD)
	Master of Science (MS) in Poultry Science

Curriculum layout and syllabus for the degree of Master of Science (MS) in Poultry Science

- Requirement for registration:** Bachelor of Science in Animal Husbandry or Bachelor of Science in Veterinary Science & Animal Husbandry degree from any recognized University
- Duration:** One and half ($1\frac{1}{2}$) years (Registration valid for three consecutive years)
- Semester:** Three Semesters (Registration valid up to consecutive six semesters)
- Two semesters in a year each of six (6) months (January-June/July-December)
- No. of courses = 12
- No. of credits = 40
- Total Marks = 2000

Distribution of courses, credits and marks

MS in Poultry Science shall be offered with 40 credits in 3 semesters each of six months duration. The courses worth 24 credits of which 12 credits shall be offered during the first semester and the other 12 credits during the 2nd semester respectively for the students. Another 16 credits shall be reserved for the research (thesis and thesis defense). The students have to start their research work for thesis (equivalent to 12 credits) under the guidance and supervision of his/her research supervisors after the completion of first semester and the same shall be carried on up to the last semester when it will be evaluated. After the evaluation of thesis the students have to face thesis defense (equivalent to 4 credits). The distribution of courses, credits and marks are shown below:

Course Type	No. of Courses	Credits	Marks
Course (compulsory)	12	24	1200
Research		12	600
a) Thesis			
b) Thesis defense		4	200
Total		40	2000

N.B. 1 course = 2 credits = 100 marks; Each course will carry 80 marks for theoretical examination and 10 marks for course assignment and 10 marks for class attendance.


Course layout for MS in Poultry Science

Ist Semester

SL. No.	Course Title	Course Code	Credit Hours	Marks
1.	Layer Breeder and Commercial Layer Management	MSPS 1201	2	100
2.	Incubation and Hatchery Management	MSPS 1202	2	100
3.	Poultry Nutrition and Feeding	MSPS 1203	2	100
4.	Poultry Farm Planning and Design	MSPS 1204	2	100
5.	Poultry Farm Machineries and Feed Mill Technology	MSPS 1205	2	100
6.	Family Poultry Production	MSPS 1206	2	100
Total 6 Courses			12	600



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2nd Semester

SL. No.	Course Title	Course Code	Credit Hours	Marks
1.	Broiler Breeder and Commercial Broiler Management	MSPS 2201	2	100
2.	Poultry Processing and Value Added Products	MSPS 2202	2	100
3.	Poultry Reproduction and Breeding	MSPS 2203	2	100
4.	Specialized Fowl Production	MSPS 2204	2	100
5.	Poultry Business Management	MSPS 2205	2	100
6.	Poultry Health and Hygiene	MSPS 2206	2	100
Total 6 Courses			12	600

3rd Semester

Research	Credit	Mark
a. Thesis	12	600
b. Thesis defense	4	200
Thesis + Thesis defense	16	800
Grand Total	[(12×2)+16] = 40	2000

Syllabus for MS in Poultry Science

Course Title: Layer Breeder and Commercial Layer Management

Credit hours: 2

Course Code: MSPS 1201


Unit	Title	Lesson
1	Production Traits	Body weight, age at sexual maturity, hen-day production, hen-house production, feed consumption, FCR, egg weight, fertility, hatchability, disease resistance.
2	Layer Industry	Production strategies of grandparent stock (GP), parent stock (PS) and commercial stock (CS); Statistics of layer industry.
3	Modern Poultry Houses and Rearing Systems	Types, uses, equipments and their maintenance; Controlling environmental factors for higher productivity; Advantages and limitations of different rearing system such as cage, floor and floor-cum-slatted floors.
4	Management Procedures	Early growth period, growing period, laying period; Egg size management; Male management; Key points to increase fertility, timing and control of egg laying, nest site selection; Pre-laying and post-laying behavior.
5	Egg Quality	Importance, ultrastructures, structure, composition, physical & chemical properties; Food value of eggs; Quality identification of shell eggs; Factors affecting egg quality; Misconceptions about the nutritive value of eggs.
6	Organic and Nutritionally Enriched Egg Production	Concept, importance, consideration and limitations; ω-3 eggs, designer egg, Se-enriched egg.

Recommended Books

1. **A Text book of Chicken Production**, 1995. Nahm, K. H. and Chung, S. B. Munun Dang Publishing Company, Seoul, Korea.
2. **Avian Physiology**, 1965. 2nd Ed. Sturkie, P. D. Comstock Publishing Associates. A Division of Cornell University Press, Ithaca, New York.
3. **Poultry Production**, 1990. 13th Ed. Austic, R. E. and Nesheim, M. C. Lea and Febigar, Philadelphia.
4. **Commercial Chicken Production Manual**, 1978. North, M. O. and Bell, D. D. AVI Publishing Company. Inc. Westport, Connecticut USA



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Course Title: Incubation and Hatchery Management

Credit hours: 2

Course Code: MSPS 1202

Unit	Title	Lesson
1	Incubation and Incubators	Worldwide incubation systems; Modern incubators; Activities of modern hatcheries.
2	Handling of Hatching Eggs	Storage, transportation, selection, disinfection, pre-warming and other hatchery practices.
3	Incubator Environment and Hatchability	Role of internal environmental factors affecting hatchability and their regulatory activities; Trouble shooting; Analysis of poor hatchability.
4	Embryonic Development	Gradual development from day-old to hatching point; Examination of embryonic death.
5	Taking off Hatches and Post Hatching Management	Procedures, care and management in relation to take off, handling, sexing, vaccination, packaging, transportation and delivery.
6	Quality Chick Production	Concept of quality chick; Points to be considered for quality chick production; Practices and monitoring related to quality chick production.

Recommended Books

1. **The Incubation Book**, 1982. Anderson-Brown, A.F. Super Publications, Saiga Publishing Co. Ltd. 1 Royal Parade Survey, U.K.
2. **Hatchery Operation and Management**, 1955. Funk, F.M. & Irwin, M.R. John Wiley & Sons. Inc. New York. Chapman & Hall Ltd. London.
3. **Hatchery Management**, 1953. Hartman, R.C. and Vicks. G.S. New York.
4. **Incubation and Hatchery Practice**, Research Bulletin No. 148. Ministry of Agriculture. Fisheries and Food. London Her Majesty's Stationery office.
5. **Early Embryology of the Chicks**, 1978. Patten. B. M. and Lata, Mc. Graw-Hill Publishing Company. Ltd. Mohan Makiujani at Rekha Printers Pvt. Ltd. New Delhi-110020
6. **Avian Incubation**, 1991. Tullet, S.G. Butterworth Heinemann. Reed Book Series Ltd. P.O. Box 5 Rushden, Northants, NN 10 9YX, England.

Course Title: Poultry Nutrition and Feeding

Credit hours: 2

Course Code: MSPS 1203


Unit	Title	Lesson
1	Poultry Feed Stuff	Poultry feed stuff used for different nutrient.
2	Nutrients	Source of different nutrients; Interrelationship among nutrients affecting production; Anti-nutritional factors (ANF) affecting growth and production; Techniques to eliminate/ reduce ANF to improve production.
3	Nutritional Requirements	Nutritional requirements for GP, PS and CS; Nutritional aspects of controlling body weight.
4	Feed Additives	Different feed additives used in poultry industry.
5	Feeding of Poultry Stocks	Distinguishing features, feeding programmes and strategies related to GP, PS and CS production; Mash vs. pellet feeding; Least cost feed formulation for aquaculture and farm animals.
6	Biotechnology in Poultry Feeds and Nutrition	Importance, modern tools and their applications in poultry industry; Biotechnological intervention to reduce yolk cholesterol; Production technology of nutritionally enriched eggs and meat; Types, mode of action and application of bio-technological tools as productivity enhancers, antibiotic replacers and heat stress eliminators; Use of medicinal plants and fermented products; Production of safe meat and eggs.

Recommended Books

1. **Nutrition of the Chicken**, 4th Edn. 2001. Leeson, S and Summers, J. D. University Books, P.O Box. 1326, Guelph, Ontario, Canada N1H 6N8.



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- Commercial Poultry Nutrition**, 1991. Leeson, S., Summers, J. D. University Books, P. O. Box 1326, Guelph, Ontario, N1H, Canada.
- Poultry Nutrition**, 1951. Ewing, M. R. The Ray Ewing Company, Publishers. Division of Hoffman La Roche, Inc. 2690. Foothill Blvd. Pasadasm, California.
- Nutrient Requirements of Poultry**, 1994. 9th Edn. National Research Council. National Academy Press, Washington, D. C. USA.
- Poultry Nutrition**, 2nd Edn, Sing, K. S. and Panda, B. 1988 Kalyani Publishers. Ludhiana- 141008, India.
- Recent Development in Poultry Nutrition-2**, 1999. Wiseman, J. and Gamsworthy, P. C. Nottingham University Press, Manor Farm, Main Street, Thumpton, Nottingham, NG11 OAX, England.
- Nutritional Biotechnology in the Feed and Food Industry**, 2006. Proceedings of Alltech's 22nd Annual Symposium, Nottingham University Press, Nottingham, UK.

Course Title: Poultry Farm Planning and Design

Credit hours: 2

Course Code: MSPS 1204

Unit	Title	Lesson
1	Farm Planning	Factors affecting farm planning; Site selection of poultry farm; General consideration of farm planning and layout; Planning of most common poultry units; Management of farm personnel.
2	Biosecurity in Planning	Biosecurity of poultry farm; Other operational practices for hygiene and sanitation of poultry farm.
3	Economics of Planning	Benefits and limitations of poultry farming; Marketing strategies and financial statement; Steps in writing a poultry business plan.
4	Design of Modern Poultry Sheds/Houses	Open-sided, tunnel-ventilated and environment-controlled houses; Management of poultry housing environments; Layout, planning and design of modern commercial, breeder, hatchery and processing plant.
5	Poultry Production and Environment	Environment and environment pollution; Reasons of environment pollution and reducing risk on environment through effective management; Management of poultry waste, dead birds and hatchery wastes; Climate change and weather management.

Recommended Books

- Poultry Production**, 1990. R. A. Singh, Kalayani Publishers. New Delhi.
- Commercial Broiler Production**, 2001. Johari, D. C. and Hussain K. Q. International Book Distributing Co., Lucknow, India.
- Commercial Chicken Production Manual**, 1999. 4th edition. North, M. O. and Bell, D. D. Chapman and Hall. Dept. B. C., 115 Fifth Avenue, New York, NY 10003, USA,
- Poultry Production in Hot Climates**, 1995. Deghir, N. J. CAB International, Walling Ford, Oxon Ox 108 DE, UK,
- Farm Building Design**, 1961. 1st Ed. Neubauer L. W. and Walker, H. B. Prentice-Hall, Inc., N. J. USA.
- Agricultural Building and Structure**, 1979. Whitaker, J. H. Reston Publishing Company, Prentice-Hall Company, Reston, Virginia

Course Title: Poultry Farm Machineries and Feed Mill Technology


Credit hours: 2

Course Code: MSPS 1205

Unit	Title	Lesson
1	Hatchery Room Machineries	Principles of operation of different incubators and their maintenance.
2	Poultry House Equipment	Electric brooder, gas brooder, thermostatic control of brooder; Power supply system, temperature controller, thermostat, color and intensity of light; Cages, automatic feeder and waterer, chain feeder system; Tunnel ventilation, exhaust fan maintenance, inspection and monitoring, humidity control systems; Laying box and automatic conveyer belt for egg collection.
3	Poultry Processing Machineries	Principles of operation of poultry processing plant and their maintenance.



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4 Feed Manufacturing	Feed grinding, mixing and pelleting machines; Silo of feed; Storage and handling of raw materials and finished product; Manufacturing operations, weighing, packing and labeling, quality control, control of toxic substances.
5 Plant Management	Plant manager's duties and responsibilities; Planning and budgeting; Manufacturing cost control; Product costing; Production planning and scheduling; Shrink control of feeds manufacturing.
6 Feed Mill Planning and Feed Act	Concept; Site selection; Size and capacity of the feed mill; Feed acts and regulation.

Recommended Books

- 1. Feed Manufacturing Technology- IV**; Robert R. McElhiney; American Feed Industry Association, Inc., Suite 1100, 1500 Wilson Blvd., Arlington, VA 22209; 1994.
- 2. Feed milling**; N.O. Simmons Leonard Hill (Books) Limited London. 1963
- 3. Management Feed and Milling (Training Manual)**; A.P. Wingelaar, IPC Livestock, Bameveld College, 32, Wesselseweg, PO Box 64-3770 AB Bameveld, The Netherlands; 1995.
- 4. An Introduction to Compound Animal Feed Production (Training Manual)** ; A.P. Wingelaar, IPC Livestock, Bameveld College, 32 Wesselseweg, PO Box 64- 3770 AB Bameveld ,The Netherlands; 1996
- 5. Some Aspects of Feed Milling**; M. Shahjalal; Poultry Sector Development Project, CIDA DLS Farmgate, Krishi Khamar Sarak, Dhaka; 2001.
- 6. Forage Conservation and Feeding.** (1978). Authors-F. Raymond G-Sheppersm and R. Waltham Farming Press Limited Suffolk, U.K.

Course Title: Family Poultry Production

Credit hours : 2

Course Code: MSPS 1206


Unit	Title	Lesson
1	Introduction	Definition; Socio-economic importance; Challenges and opportunities in developing countries; Introduction with International Network for Family Poultry Development (INFPD); Analysis of production costs, cost and return.
2	Native Chicken Breeds and Productivity	Local breeds; Performance of native hen; Critical issues for low productivity; Breed improvement; Characterization of native poultry; Selection of local breeds.
3	Housing	Housing for free-range chickens; Small-scale housing; Housing equipment- feeders, drinkers, perches, laying nests; Shelters for the mother hens and chicks.
4	Nutrition	Nutritional requirements; Feeding methods; Feed composition; Available feed resources; Scavenging Feed Resource Base (SFRB); Methods of estimating SFRB; Factors affecting SFRB; Utilization of different feed ingredients.
5	Health Care	Hygiene and bio-security; Common diseases; Disease control; Parasites and feather pecking; Vaccination program and constraint.
6	Hatching and Raising Chicks	Natural hatching; Artificial hatching; Methods and principles of rice husk incubation; Raising the chicks; Chick rearing and its challenges; Management system for reducing chick mortality.

Recommended Books

- 1. Commercial Chicken Meat and Egg Production**, 2002. Bell, D.D. and Wearer, Jr, W.D., Kluwer Academic Publishers, Distribution Centre, P.O. Box- 322, 3300AH Dordrecht, The Netherlands.
- 2. Commercial Chicken Production Manual**, 1978. North, M.O and Bell, D.D. AVI Company, INC. Westport, Connecticut, USA.



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Course Title: Broiler Breeder and Commercial Broiler Management

Credit hours: 2

Course Code: MSPS 2201

Unit	Title	Lesson
1	Introduction	Broiler breeding stock and its performance; Commercial broiler rearing systems and operations; Concept of modern broiler farming.
2	Feeding Management	Preferential and challenged feeding for broiler breeder; Control of body weight, flock uniformity, significance of maintenance flock uniformity to achieve desirable production.
3	Breeder Management	Controlling body weight, mixing with female, spiking and intra-spiking; Broiler grandparent and parent stock management.
4	Commercial Broiler Management	Mixed sex and separate sex rearing of commercial broiler; Methods of estimating fatness in broiler; Modern broiler harvesting and harvester; Trouble shooting in broiler production.
5	Stress Mechanism	Heat regulating mechanism of broilers; Environmental influence on broiler production; Different stressors and stresses and their management in broilers production.
6	Organic Broiler Production	Concept, importance, consideration and limitations; Automation and mechanization of broiler farms and its importance.
7	Broiler Farm Performance	Bio-security in broiler farming; Factors influencing profit of broiler farming; Key Performance Indicator (KPI) of broiler production; Prevention and control of broiler diseases.

Recommended Books

1. **Commercial Chicken Meat and Egg Production**, 2002. Bell, D.D. and Wearer, Jr, W.D., Kluwer Academic Publishers, Distribution Centre, P.O. Box- 322, 3300AH Dordrecht, The Netherlands.
2. **Commercial Chicken Production Manual**, 1978. North, M.O and Bell, D.D. AVI Company, INC. Westport, Connecticut, USA.
3. **Poultry Production**, 1990. 13th Edn. Austic, R. E. and Nesheim, M. C., Lea and Febiger, Philadelphia.
4. **Broiler Utpadan (Broiler Production)**, 1994. Latif, M. A., Bangla Academy, Dhaka.
5. **Growth and Poultry Meat Production**, Freeman and Booman, British Poultry Science Ltd., UK.

Course Title: Poultry Processing and Value Added Products

Credit hours: 2

Course Code: MSPS 2202


Unit	Title	Lesson
1	Egg Technology	Physicochemical changes of preserved eggs; Maintenance of albumen, yolk and egg shell quality; Functional properties of eggs in foods; Development of value-added products from egg; Freezing and drying of eggs and egg-products; Pasteurization of eggs and egg-products; Non food uses of eggs; Inedible products of egg industry and their utilization; Egg products industry.
2	Meat Technology	Standard and quality criteria for live and dressed poultry; Inspection of live and killed birds by antemortem and postmortem examinations; Pre-slaughter factors affecting poultry meat quality; Steps in poultry processing; Effects of processing on meat quality; Preservation of market quality of poultry meat; Evaluation of poultry meat quality; Microorganisms in poultry meat.
3	Egg and Meat in Food Items	Uses of egg and meat in different food items; Preparation of different egg recipes; Preparation of different products such as sausage, nuggets, meat ball, jerky, mayonnaise etc.
4	Poultry Processing Plant Design	Layout and construction of processing plant; Water supply, sanitation and health regulations in a processing plant.
5	Food Safety	Hazard Analysis and Critical Control Point (HACCAP); Standard Operating Procedure (SOP).
6	Byproducts of Poultry Industry	Use of inedible poultry by-products.

Recommended Books

1. **Avian Eggs**, 1963. Romanoff, A. L. and Romanoff, A. J. John Wiley and Sons, Inc. New York
2. **Poultry Products Technology**, 1989. 2nd Edn. Mountney, G. J. Food Products Press. Inc. New York.



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3. **Food Safety and Quality Assurance (Food of Animal Origin)**, 1996. William T. Hubbert, Harry V. Hagstad, Spangler, Michael H. Hinton and Keith L. Hughes, Iowa State University, Press, Ames, Iowa 50014.
4. **The Avian Egg – Chemistry and Biology**, 1989. Burly R.W. and Vadehra. D.V. John Willy and Sons. Inc. Singapore.
5. **Egg Uses and Processing Technologies – New Developments**, Sim, J. S. and Wakei, S, CAB international, Wallingford, Oxon, Ox 10 8DE, U.K.
6. **Egg Science and Technology**, 1995. 4th Ed. Stadelman, W.J. and Cotterill, O. W. The Haworth Press Inc. New York.

Course Title: Poultry Reproduction and Breeding

Credit hours: 2

Course Code: MSPS 2203

Unit	Title	Lesson
1	Reproductive System	Features of avian reproduction; Endocrine regulation of male and female reproduction in avian species; Photosensitivity in follicular development; Production, maturation and transport of sperm in the male reproductive system; Sperm quality and factors affecting sperm quality; Artificial insemination (AI) in poultry and benefits of practicing AI in poultry industry; Mechanism of acrosome reaction and process of fertilization in poultry; Role of inner perivitelline layer in the process of fertilization; Factors affecting production of fertile eggs.
2	Poultry Genetic Resources	Species, breeds, strains, lines and families, pigmentation in the feather, skin, meat and egg; Biochemical polymorphism, immunogenetics and disease resistance; Genetic parameters of economic traits in poultry; Heritability, repeatability and genetic correlation.
3	Selection for Meat Production	Growth rate, feed conversion efficiency, viability, dressing percentage and carcass quality.
4	Selection for Egg Production	Number of eggs laid; Rate of lay; Persistency of production; Age and weight at sexual maturity; Feed conversion efficiency; Egg size and egg quality.
5	Breeding for Meat Production	Breed crossing, strain crossing, heterosis or hybrid vigor.
6	Breeding for Egg Production	Pure breeding, strain crossing and line crossing; Breeding for general and specific combining abilities; Development of a large scale poultry breeding program.

Recommended Books

1. **Biological Rhythms in Birds: Neural and Endocrine Aspects**. 1980. Y. Tanabe, K. Tanaka and T. Ookawa. Japan Scientific Societies Press, Tokyo.
2. **Reproductive Physiology**. 1964. A. V. Nalbandov. 2nd Edition. W. H. Freeman and Company, San Francisco and London.
3. **Molecular Biology of the Cell (Part I-IV)**. 1994. B. Alberts, D. Bray, J. Lewis, M. Raff, K. Roberts and J. D. Watson. 3rd edition. Garland Science, New York.
4. **Poultry Breeding and Genetics**. 1990. Crawford, R.D. Elsevier Science Publishers, B.v. Amsterdam, The Netherlands.
5. **Biometrical Methods in Poultry Breeding**. 1994. R.P. Singh and J. Kumer. Kalyani Publishers, Ludhiana, New Delhi, India.

Course Title: Specialized Fowl Production


Credit hours: 2

Course Code: MSPS 2204

Unit	Title	Lesson
1	Duck Farming	World distribution and recent trend of duck production; Duck farming in Bangladesh- advantages and limitations; Duck production systems and management practices; Mule duck production- principles and prospects; Advances in the nutrition management of meat and egg type ducks; Integrated duck farming- concepts, advances and limitations.
2	Quail Farming	Present status of quail production in Bangladesh; Advantages of quail farming; Incubation and hatchery management; Brooding, growing and laying management of quail; Feed formulation for different types of quails; Economics of quail farming; Future scopes of development.
3	Geese Farming	Advantages of geese farming; Grower and layer geese management; Hatchery management; Feed formulation and requirement for different types of geese; Future scopes of development.



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4	Turkey Farming	Advantages of turkey farming; Turkey management; Hatchery management; Feed formulation and requirement for different types of turkey; Future scopes of development.
5	Pigeon Farming	Advantages of pigeon farming; Pigeon management; Squab production; Feed formulation for pigeon; Future scopes of development.
6	Guinea fowl Farming	Present status and future scope of guinea fowl production in Bangladesh; Advantages of guinea fowl farming; Management of guinea fowl at different ages; Hatchery management; Feed formulation and requirement for guinea fowl.

Recommended Books

1. **Water Fowl Production**, 1988. Proceedings of the International Symposium on Waterfowl Production. Beijing. Pergamon Press plc, Hill Hall. Oxford OX3, OBW, UK.
2. **Duck Production Science and World Practice**, 1986. Farrell, David J. and Stapleton, P. University of New England, Armidale, Australia.
3. **Micro Livestock**, 1991. National Academy Press, Washington, D. C.
4. **Water Fowl Ecology**, 1991. Owen, M. and Black, J. M. Chapman and Hall, 29 West 35th Street, New York, 10001-2291, USA.
5. **Quail Palan (In Bangla)**, 2nd Edn. Rahman, A. N. M. Aminoor. Porua, 45, Aziz Super Market, Shahbag, Dhaka, Bangladesh.

Course Title: Poultry Business Management

Credit hours: 2

Course Code: MSPS 2205

Unit	Title	Lesson
1	Introduction to Poultry Marketing	Definition of marketing, marketing process, growth and role of marketing, consumers and poultry marketing; Poultry marketing management; Marketing problems.
2	Price Analysis	Supply and demand analysis; Application of supply and demand analysis; Price fluctuation.
3	Marketing Cost	Marketing margin; Cost component; Interrelationships of the marketing margin and food prices, price and consumption; Poultry and egg marketing channel.
4	Cooperatives in the Food Factory	Definition; Classification; Purposes of cooperative; Problems of cooperatives; Integration of poultry industry.
5	Market Development and Demand Expansion	Market Development in the food industry; Varieties of food demand; Role and criticism of advertising; Advertising in the food system; Problems of market news and information.
6	Current Asset Management	Working capital management- concepts, determinants and estimation of working capital; Cash management-motive for holding cash, factors determining cash needs, determination of optimum cash balance; Inventory management- objectives and techniques of inventory management.
7	Risk Management	Nature and types of risk in poultry marketing; Risk and uncertainty; Techniques to reduce risk in poultry farming.

Recommended Books

1. **Marketing of Agricultural Products**, 2002. Richard L. Kohls and Joseph N. Uhl. Prentice-Hall, Inc, New Jersey, USA.
2. **Financial Management in Agriculture**, 1983. Barry, P.J., Hopkin, J.A. and Baker, C.B. The Interstate Printers and Publishers, Inc., Danville, Illinois.
3. **Financial Management- Theory and Practice**, 1988. Brigham, E.F. and Gapenski, L.C. The Dryden Press, New York.
4. **Fundamentals of Financial Management**, 1995. Prentice. Home, J.V.C. and Wachowicz, J.M. Hall of India Private Limited, New Delhi.
5. **Financial Management**, 1989. Khan, M.Y. and Jain, P.K. Tata McGraw-Hill Publishing Company Limited, New Delhi.
6. **Financial Management- a Conceptual Approach**, 1987. Kulkarni, P.V. Himalaya Publishing House, Bombay.



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Course Title: Poultry Health and Hygiene

Credit hours: 2

Course Code: MSPS 2206

Unit	Title	Lesson
1	Hygiene and Sanitation	Poultry health, hygiene and sanitation; Factors influencing health and diseases of avian species; Maintenance of poultry health practice of hatchery, flock hygiene and management.
2	Waste Management	Disposal of wastes, litters and carcasses.
3	Disease Transmission	Disease transmission cycle; Source of disease producing agents; Stress, epidemiological and ecological investigation of poultry diseases.
4	Infectious Disease	Spread of infectious agents of important poultry diseases;
5	Disease Prevention	Hygienic and other measures to be adopted for the prevention, control and eradication of important infestations and infections of avian species.
6	Immunization	Importance, methods and precaution of vaccination. Causes of vaccination failure. Vaccination schedule for GP, PS and CS.

Recommended Books

1. **Complete Pet Bird Owners Handbook.** 2003 by Gallerstein, D.G., <http://www.amazon.com/complete-pet-bird-owners-handbook/dp/1895270251>.
2. **Poultry Diseases.** 1996 by Jordan, F.T.W and Pattison, M., 4th edn., W.B. Saunders Company, Philadelphia.
3. **Diseases of Poultry.** 1984 by Hofstad, M.S., 8th edn., Iowa State University Press, Iowa, USA.
4. **Environmental Health Field Practice.** 1983 by Brown, S.M., Clark, W.N., Steven L. Zuieback and Praeger, Society for Veterinary Epidemiology and Preventive Medicine, USA.
5. **Livestock Health and Housing.** 1979 by David Sainsbury and Peter Sainsbury, 2nd edn., Bailliere Tindall, London.

Any kind of information, please contact with:

Professor Dr. Md. Rokibur Rahman

Program Coordinator

&

Professor (Poultry Science)

School of Agriculture and Rural Development

Bangladesh Open University, Gazipur-1705

Telephone: +88 09666730730 Extn. 677

Cell: +88 01716733722

E-mail: rokibur76@yahoo.com