

Animal Science

Programmes

Master of Animal Science

Master of Aquatic Bio-Resources Management and Aquaculture

Master of Poultry Science and Technology

Master of Dairy and Meat Product Technology

M.Sc. in Animal Science

M.Sc. in Aquatic Bio-Resources Management and Aquaculture

M.Sc. in Poultry Science and Technology

M.Sc. in Dairy and Meat Product Technology

Master of Philosophy (M.Phil.)

Doctor of Philosophy (Ph.D.)

About the Board of Study

The Board of Study (BS) has functioned since the inception of the PGIA producing experts to cater to the needs of the livestock/fish production, product processing and allied sectors in the country. The Board has developed various new dimensions in its academic programmes during the past few decades. As the teaching panel and the members of the BS are from the University of Peradeniya as well as various other institutions, the Board always had the opportunity to interact with different segments of the animal production sector of the country and to use this advantage to develop its activities. From the inception, the Board offered postgraduate courses in various disciplines of Animal Science. From time to time new courses were introduced considering the national importance of such courses. Presently, in addition to the Degree Programme in Animal Science, the BS offers degree programmes in Poultry Science and Technology, Dairy and Meat Product Technology and Aquatic Bio-resources Management and Aquaculture.

Recent research

- Effects of ultrasound on the emulsion stability and gel properties of buffalo (*Bubalus bubalis*) milk gels
- Effect of Dietary Supplementation on Productive Performances of Lactating Dairy Cows Fed with Total Mixed Rations (TMRs).
- Prevalence and Economic Impact of Contagious Pustular Dermatitits Virus Among Some Ruminants in Sri Lanka
- Species replacement of white-eyes (Passeriformes: Zosteropidae) along an altitudinal gradient
- Effect of Palmyrah leaves (*Boarassus flabellifer*) on ensiling characteristics, nutritive value, digestibility and intake of corn (*Zea mays*) or hybrid sorghum (*Sorghum bicolor* (L) Moench) silage
- Novel approach to improve the omega 6:omega 3 fatty acid ratio in eggs and broiler meat

Master of Animal Science

Overview

Livestock sector plays a key role in agriculture, providing employment and income generation opportunities, helping to alleviate protein malnutrition and strengthening the economy of Sri Lanka. The dairy sub sector including cattle, buffaloes and goats, poultry sub

sector including broilers, layers and miscellaneous poultry, and swine industry are some key components of the livestock sector while animal product processing industry including beef and mutton is also growing rapidly with an ever increasing demand. Since main objective of the livestock industry, comprising of a range of stakeholders from small scale farmers to large scale companies, is to maximise profit utilizing the available resources, it is a challenge to achieve the above objective while ensuring sustainability. Practical solutions to most problems in the livestock sector requires a thorough knowledge and understanding on every aspect of the industry, including production, processing and marketing. The Master of in Animal Science programme is carefully designed after a thorough investigation of the needs of livestock sector of the country and global demand with the aim of producing a graduate capable of providing in depth analysis of the problems and challenges of the livestock sector, and proposing sound and innovative solutions to the issues leading to improved overall productivity and advancement in career development.

Key features

The courses have been developed and periodically revised to provide a comprehensive coverage on all aspects of Animal Science including ruminant and non-ruminant animal production, nutrition, genetics and breeding, lactation and reproductive physiology, health and hygiene, welfare and legislation, animal biotechnology, animal product processing and

No. of Credits: 30

Minimum Programme Duration: 3 semesters

Entry Requirements: All applicants must possess a Bachelors degree in Agriculture, Veterinary, Natural Science or an equivalent qualification acceptable to the Senate of the University of Peradeniya.

aquatic resource management, wildlife, extension, scientific writing and statistics. The prerequisite courses (for those with inadequate undergraduate background in Animal Science) and introductory courses are followed by advanced courses which are in par with those offered by leading universities in the world.

The laboratory practical classes and field visits are designed to provide the much needed hands on training and exposure for students. Upon completion of the course, students will be able to

performing in-depth scientific analysis of complex problems of various strata of the livestock sector and recommend innovative solutions to enhance productivity and overall development of the sector. The strong theoretical background provided by this programme creates a great platform for the students to continue towards M.Phil. and Ph.D. degree programmes offered by the Board of Study in Animal Science.

| Code | Title | Credits | Option |
|-----------------------|---|---------|--------------|
| First Semester | | | |
| *AS 5101 | Introduction to Aquaculture and Fisheries | 3 | Prerequisite |
| *AS 5102 | Comparative Anatomy and Physiology of Farm Animals | 3 | Prerequisite |
| *AS 5103 | Introduction to Animal Production | 2 | Prerequisite |
| *AS 5104 | Principles of Animal Nutrition | 2 | Prerequisite |
| AS 5120 | Endocrinology of Farm Animals | 2 | Compulsory |
| AS 5121 | Monogastric Nutrition | 3 | Compulsory |
| AS 5126 | Quantitative and Molecular Genetics of Farm Animals | 2 | Compulsory |
| AS 5127 | Ruminant Nutrition | 3 | Compulsory |
| AS 5198 | Directed Study | 5 | Compulsory |
| AS 5199 | Seminar | 1 | Compulsory |
| AS 5106 | Aquaculture Based Farming Systems | 2 | Elective |
| AS 5109 | Dairy Chemistry | 2 | Elective |
| AS 5114 | Integrated Livestock Systems | 3 | Elective |
| AS 5115 | Laboratory Techniques in Animal Nutrition | 2 | Elective |
| AS 5117 | Layer and Parent Stock Management | 3 | Elective |
| AS 5119 | Meat Science | 2 | Elective |
| AS 5122 | Physiology of Lactation | 2 | Elective |
| AS 5124 | Procuring, Processing and Marketing of Fluid Milk | 2 | Elective |
| AS 5125 | Processing of Dairy Products | 2 | Elective |
| AS 5128 | Reproductive Physiology of Farm Animals | 3 | Elective |
| AS 5129 | Selection Index and Mixed Model Methodology | 3 | Elective |

Note: Course list continued on next page

| | | | |
|------------------------|---|---|------------|
| AS 5136 | Introduction to Molecular Biology in Animal Science | 3 | Elective |
| AS 5151 | Biochemical Genetics and Cytogenetics | 2 | Elective |
| AS 5152 | Livestock Bio-diversity and Conservation | 2 | Elective |
| AS 5197 | Proposal Formulation and Scientific Writing | 2 | Elective |
| EC 5156 | Livestock Economics and Marketing | 2 | Elective |
| Second Semester | | | |
| AS 5213 | Livestock Breeding | 3 | Compulsory |
| AS 5218 | Non-ruminant Animal Production | 3 | Compulsory |
| AS 5220 | Ruminant Livestock Production | 3 | Compulsory |
| AS 5201 | Advances in Forage Production and Utilization | 2 | Elective |
| AS 5202 | Animal Biotechnology | 3 | Elective |
| AS 5203 | Animal-Environment Interactions | 2 | Elective |
| AS 5204 | Aquatic Resources Management | 2 | Elective |
| AS 5206 | Broiler Production | 2 | Elective |
| AS 5214 | Livestock Health and Hygiene | 2 | Elective |
| AS 5222 | Wildlife Environment | 3 | Elective |
| AS 5251 | Advances in Equine Nutrition and Feeding | 2 | Elective |
| AS 5252 | Animal Quarantine, Welfare and Legislation | 1 | Elective |
| AS 5253 | Animal Waste Handling and Management | 2 | Elective |
| AS 5258 | Animal Food Safety | 2 | Elective |
| AS 5263 | Global Warming and Animal Production | 2 | Elective |
| AS 5264 | Cell Biology in Animal Science | 2 | Elective |
| AS 5297 | Field Visits - Animal Science | 1 | Elective |
| *ST 5254 | Animal Experimentation | 2 | Elective |
| EX 5214 | Extension for Livestock Production | 2 | Elective |

** Students holding degrees other than Bachelors Degree in Agriculture or Veterinary Science will be required to take courses AS 5101, AS 5102, AS 5103, AS 5104 and ST 5254. Students holding Bachelors Degree in Veterinary Science may be required to take course AS 5101 as decided by the Board of Study. No credits will be given for following prerequisite courses, but the grades should reach a minimum of a 'C' grade. Any other relevant required courses or exemptions shall be decided by the Board of Study depending on individual cases and on the recommendation of the programme coordinator/ advisor.*



Master of Poultry Science and Technology

No. of Credits: 30

Minimum Programme Duration: 3 semesters

Entry Requirements: All applicants must possess a Bachelors degree in Agriculture, Veterinary, Natural Science or an equivalent qualification acceptable to the Senate of the University of Peradeniya. Students holding degrees other than Bachelors degree in Agriculture or Veterinary Science may be required to follow prerequisite courses, on the basis of their qualifications as decided by the Board of Study.

Overview

While livestock is a major component of Agriculture, the poultry industry is the most developed and fastest growing component of the livestock sector in Sri Lanka. With the involvement of the private sector, importation of genetically superior commercial strains, establishment of large scale hatcheries producing high quality day old chicks for farmers, establishment of buy-back systems, improved feeding and management standards, and well developed processing and marketing systems have enabled the poultry sector to develop from backyard poultry keeping to high producing intensive broiler and layer industries. With the expansion of the poultry sector, the demand for knowledge and expertise has been on the rise for all aspects of the industry including improved feeding, health and other management standards, processing and product development, and marketing.

Employment opportunities in poultry related industries such as poultry feed, pharmaceutical and processing industries have also grown along with the expansion of the sector. The other issues related to input and output, such as price fluctuations, animal welfare, consumer protection and Government policy have also become critical to the growth of the poultry industry.

The need assessment surveys have shown that the industry requires highly specialized graduates who are capable of solving issues that requires in-depth knowledge on the subject.

The Master of Poultry Science and Technology programme is designed with the aim of producing a specialized graduate, equipped with the necessary in-depth knowledge and skills, and capable of analysing the complex problems of the poultry sector to produce creative and practically sound solutions and develop innovative procedures to improve overall productivity of the industry and economic growth of the country while enhancing opportunities for career development.

Key features

The courses of the Master of Poultry Science and Technology have been carefully developed to provide a comprehensive coverage on all aspects of Poultry Science and Technology necessary for a graduate to contribute effectively towards the advancement of the poultry sector and to provide a platform for further studies towards M.Phil. and Ph.D. degrees in Poultry Science or a related field.

Thus it covers the management aspects such as hatchery, layer and parent stock and broiler management, poultry nutrition, genetics and breeding, health and hygiene, poultry processing technology, microbiology, biotechnology, by product technology, welfare and legislation, waste management, laboratory techniques, scientific writing, statistics and several other optional courses. Laboratory practicals have been designed to develop hands on skills on all necessary laboratory procedures and fields visits provide the necessary exposure to management and issues in various large scale poultry operations and processing plants.



| Code | Title | Credits | Option |
|------------------------|--|---------|--------------|
| First Semester | | | |
| *AS 5102 | Comparative Anatomy and Physiology of Farm Animals | 3 | Prerequisite |
| *AS 5103 | Introduction to Animal Production | 2 | Prerequisite |
| *AS 5104 | Principles of Animal Nutrition | 2 | Prerequisite |
| AS 5108 | Avian Reproduction, Embryology and Hatchery Management | 2 | Compulsory |
| AS 5117 | Layer and Parent Stock Management | 3 | Compulsory |
| AS 5121 | Monogastric Nutrition | 3 | Compulsory |
| AS 5134 | Poultry Meat Processing Technology | 1 | Compulsory |
| AS 5135 | Egg Technology | 1 | Compulsory |
| AS 5198 | Directed Study | 5 | Compulsory |
| AS 5199 | Seminar | 1 | Compulsory |
| AS 5115 | Laboratory Techniques in Animal Nutrition | 2 | Elective |
| AS 5126 | Quantitative and Molecular Genetics of Farm Animals | 2 | Elective |
| AS 5129 | Selection Index and Mixed Model Methodology | 3 | Elective |
| AS 5131 | Slaughterhouse Planning and Management | 2 | Elective |
| AS 5151 | Biochemical Genetics and Cytogenetics | 2 | Elective |
| AS 5152 | Livestock Bio-diversity and Conservation | 2 | Elective |
| AS 5197 | Proposal Formulation and Scientific Writing | 2 | Elective |
| Second Semester | | | |
| AS 5205 | Avian Health and Hygiene | 2 | Compulsory |
| AS 5206 | Broiler Production | 2 | Compulsory |
| AS 5212 | Genetics and Breeding of Poultry | 2 | Compulsory |
| AS 5298 | Industrial Visits - Poultry Science and Technology | 1 | Compulsory |
| AS 5202 | Animal Biotechnology | 3 | Elective |
| AS 5217 | Microbiology of Dairy, Meat, Fish and Egg Products | 3 | Elective |
| AS 5252 | Animal Quarantine, Welfare and Legislation | 1 | Elective |
| AS 5253 | Animal Waste Handling and Management | 2 | Elective |
| AS 5256 | Slaughterhouse By-Product Technology | 2 | Elective |
| AS 5264 | Cell Biology in Animal Science | 2 | Elective |
| *ST 5254 | Animal Experimentation | 2 | Elective |

* Students holding degrees other than Bachelors Degree in Agriculture and Veterinary Science will be required to take courses AS 5102, AS 5103, AS 5104 and ST 5254. No credits will be given for those prerequisite courses, but the grades should reach a minimum of a 'C' grade. Any other relevant required courses or exemptions shall be decided by the Board of Study depending on individual cases on the recommendation of the programme coordinator/ advisor.



Master of Aquatic Bio-Resources Management and Aquaculture

No. of Credits: 30

Minimum Programme Duration: 3 Semesters

Entry Requirements: All applicants must possess a Bachelors degree in Agriculture, Veterinary, Natural Science or an equivalent qualification acceptable to the Senate of the University of Peradeniya. Students holding degrees other than Bachelors degree in Agriculture or Veterinary Science may be required to follow prerequisite courses, on the basis of their qualifications as decided by the Board of Study.

Overview

Sri Lanka is leading the world with respect to the total aquatic resource area owned by a country (per unit of land area). When both inland and marine aquatic resources are considered, there is an immense potential to develop the Fisheries Sector of Sri Lanka. At present the Fisheries Sector provides direct and indirect employment to around 650,000 people and is directly linked with the lives of approximately 50% of the population in the coastal belt. About 2.5% of the export earnings come from the Fisheries Sector. The real potential for the export industry including ornamental fish has not yet been tapped. Though there are many, aquatic resources must be managed and exploited ensuring sustainability. This is a difficult task as there are many stakeholders for aquatic resources, including fishermen, farmers, tourists, Govt. Institutions (irrigation, hydro power, etc.) and people of neighbouring villages. Thus, sustainable management of aquatic resources goes beyond the purview of fisheries resource management.

Considering the amount of aquatic resources available in the country, there is an urgent need for specialized graduates who have an in-depth understanding and knowledge on aquaculture, fisheries and aquatic resource management. Therefore, the Master of Aquatic Bio-resources Management and Aquaculture (ABRMA) programme was developed to produce specialized graduates who have the necessary knowledge, understanding and skills to recognize the complex issues pertaining to management of aquatic resources and to provide effective

solutions to solve the issues, in addition to the capabilities developed to contribute to the development of the aquaculture sub sector.

Key features

The programme previously known as M.Sc. in Aquaculture was revised and expanded as Master of ABRMA in order to suit the need and the demand of the country. Thus it has the basic courses and those related to Aquatic Resource Management and Fisheries.

The basic courses include Anatomy and Physiology of Fish, Genetics and Breeding, Fish Morphometrics, Biodiversity,

Statistics and Scientific Writing, etc. Fisheries related courses cover many aspects such as Fisheries Management, Fish Seed Production and Larval Rearing, Ornamental Fisheries Management, Aquaculture based Farming Systems, Fish Processing, Biotechnology, Aquatic Resources Management and, Marine Fisheries Management, etc.

The applicants have the choice to select suitable optional courses depending on their inclination towards Fisheries Management or Ornamental Fisheries.

| Code | Title | Credits | Option |
|-----------------------|--|---------|--------------|
| First Semester | | | |
| *AS 5101 | Introduction to Aquaculture and Fisheries | 3 | Prerequisite |
| AS 5105 | Anatomy and Physiology of Fish | 2 | Compulsory |
| AS 5113 | Fish Systematics and Morphometrics | 2 | Compulsory |
| AS 5116 | Laboratory Techniques in Fisheries and Water Quality | 2 | Compulsory |
| AS 5198 | Directed Study | 5 | Compulsory |
| AS 5199 | Seminar | 1 | Compulsory |
| AS 5106 | Aquaculture Based Farming Systems | 2 | Elective |
| AS 5110 | Health Management of Fish | 2 | Elective |
| AS 5118 | Mariculture | 2 | Elective |
| AS 5126 | Quantitative and Molecular Genetics of Farm Animals | 2 | Elective |
| AS 5129 | Selection Index and Mixed Model Methodology | 3 | Elective |
| AS 5130 | Shrimp Production | 3 | Elective |
| AS 5132 | Aquatic Microbiology | 1 | Elective |
| AS 5133 | Fish Biotechnology | 1 | Elective |
| AS 5151 | Biochemical Genetics and Cytogenetics | 2 | Elective |
| AS 5155 | Fisheries Management | 3 | Elective |
| AS 5197 | Proposal Formulation and Scientific Writing | 2 | Elective |

Note: Course list continued on next page

| Second Semester | | | |
|-----------------|--|---|------------|
| AS 5204 | Aquatic Resources Management | 2 | Compulsory |
| AS 5210 | Fish Population Dynamics | 2 | Compulsory |
| AS 5211 | Genetics and Breeding of Fish | 2 | Compulsory |
| AS 5257 | Fish Seed Production and Larval Rearing | 3 | Compulsory |
| AS 5209 | Fish Feeds and Nutrition | 3 | Elective |
| AS 5215 | Marine Fisheries Management | 2 | Elective |
| AS 5217 | Microbiology of Dairy, Meat, Fish and Egg Products | 2 | Elective |
| AS 5219 | Ornamental Fisheries Management | 3 | Elective |
| AS 5221 | Shrimp and Fish Processing | 2 | Elective |
| AS 5252 | Animal Quarantine, Welfare and Legislation | 1 | Elective |
| AS 5253 | Animal Waste Handling and Management | 2 | Elective |
| AS 5255 | Fish Farm Designing, Construction and Management | 2 | Elective |
| AS 5261 | Coast Conservation and Management | 1 | Elective |
| AS 5262 | Marine Environment Pollution Prevention | 1 | Elective |
| *ST 5254 | Animal Experimentation | 2 | Elective |

* Students holding degrees other than Bachelors Degree in Agriculture, and Veterinary Science will be required to take courses AS 5101 and ST 5254. Students holding Bachelors Degree in Veterinary Science may be required to take AS 5101 course as decided by the Board of Study. No credits will be given for following AS 5101, but the grade obtained should be a minimum of a 'C' grade. Any other relevant required courses shall be decided by the Board of Study depending on individual cases and on the recommendation of the programme coordinator/advisor.

Master of Dairy and Meat Product Technology

Overview

With the recent developments in the livestock sector, particularly in the poultry industry, animal product processing has evolved with several large scale companies pioneering the development. As life styles of modern Sri Lankans become increasingly hectic, the demand for fast foods and easy-to-cook preparations have been increasing. The market has been driven to capture specific age groups of consumers, particularly school children.

Thus many attractive animal products have been introduced especially for children in the recent past. Since public safety and health issues are becoming increasingly important, the processing industry needs to adapt to the new life styles of consumers such as with low

fat milk, less cholestrogenic foods, and functional foods. Meanwhile, value addition seems to be the main alternative in livestock industry where farm gate price of milk, meat, eggs and other products are relatively low to be economically sustainable.

Food hygiene is also a major concern from slaughterhouses to processing plants and retail outlets. Since improved technologies and new products are being introduced continuously to the

ever changing market needs, it is essential to have specialized knowledge, training and hands-on skills on all aspects of processing technology.

Thus the programme of the Master of Dairy and Meat Technology was developed as a focused specialization programme which provides much needed exper-tise and capabilities to handle advanced operations and laboratory testing and monitoring procedures in the animal product processing industry, to

No. of Credits: 30
Minimum Programme Duration: 3 Semesters

Entry Requirements: All applicants must possess a Bachelors degree in Agriculture, Veterinary, Natural Science or an equivalent qualification acceptable to the Senate of the University of Peradeniya. Students holding degrees other than Bachelors degree in Agriculture or Veterinary Science may be required to follow prerequisite courses, on the basis of their qualifications as decided by the Board of Study.

| Code | Title | Credits | Option |
|------------------------|---|---------|--------------|
| First Semester | | | |
| *AS 5102 | Comparative Anatomy and Physiology of Farm Animals | 3 | Prerequisite |
| *AS 5103 | Introduction to Animal Production | 2 | Prerequisite |
| AS 5109 | Dairy Chemistry | 2 | Compulsory |
| AS 5119 | Meat Science | 2 | Compulsory |
| AS 5124 | Procuring, Processing and Marketing of Fluid Milk | 2 | Compulsory |
| AS 5125 | Processing of Dairy Products | 2 | Compulsory |
| AS 5134 | Poultry Meat Processing Technology | 1 | Compulsory |
| AS 5198 | Directed Study | 5 | Compulsory |
| AS 5199 | Seminar | 1 | Compulsory |
| AS 5115 | Laboratory Techniques in Animal Nutrition | 2 | Elective |
| AS 5120 | Endocrinology of Farm Animals | 2 | Elective |
| AS 5122 | Physiology of Lactation | 2 | Elective |
| AS 5126 | Quantitative and Molecular Genetics of Farm Animals | 2 | Elective |
| AS 5127 | Ruminant Nutrition | 3 | Elective |
| AS 5129 | Selection Index and Mixed Model Methodology | 3 | Elective |
| AS 5131 | Slaughterhouse Planning and Management | 2 | Elective |
| AS 5151 | Biochemical Genetics and Cytogenetics | 2 | Elective |
| AS 5197 | Proposal Formulation and Scientific Writing | 2 | Elective |
| AE 5152 | Environmental Impact Assessment | 2 | Elective |
| FT 5105 | Food Microbiology | 2 | Elective |
| FT 5114 | Nutritional and Health Aspects of Food | 2 | Elective |
| FT 5156 | Food Regulations and Quality Management Systems | 2 | Elective |
| Second Semester | | | |
| AS 5207 | Dairy Engineering | 2 | Compulsory |
| AS 5216 | Meat Processing Technology | 2 | Compulsory |
| AS 5217 | Microbiology of Dairy, Meat, Fish and Egg Products | 3 | Compulsory |
| AS 5256 | Slaughter House By-Product Technology | 2 | Compulsory |
| AS 5299 | Industrial Visits-Dairy and Meat Product Technology | 1 | Compulsory |
| AS 5201 | Advances in Forage Production and Utilization | 2 | Elective |
| AS 5202 | Animal Biotechnology | 3 | Elective |
| AS 5213 | Livestock Breeding | 3 | Elective |
| AS 5218 | Non-Ruminant Animal Production | 3 | Elective |
| AS 5220 | Ruminant Livestock Production | 3 | Elective |
| AS 5221 | Shrimp and Fish Processing | 2 | Elective |
| AS 5252 | Animal Quarantine, Welfare and Legislation | 1 | Elective |
| AS 5258 | Animal Food Safety | 2 | Elective |
| AS 5259 | Dairy Biotechnology | 2 | Elective |
| AS 5260 | Dairy Sanitation and Hygiene | 1 | Elective |
| FT 5201 | Food Plant Layout and Operations | 1 | Elective |
| FT 5203 | Production and Marketing Operations in Food Manufacturing Organizations | 2 | Elective |
| FT 5223 | Food Analysis | 3 | Elective |
| FT 5224 | Sensory Evaluation of Foods | 1 | Elective |
| *ST 5254 | Animal Experimentation | 3 | Elective |

understand the issues related to the processing industry, to be capable of development of new products and to advance the career opportunities in the field of animal product processing or a related field.

Key features

The Master of Dairy and Meat Product Technology programme has three major components including dairy product technology, meat product technology, and general courses such as animal bio-technology, animal welfare and legisla-tion, food and nutrition, microbiology, genetics, and physiology. In addition to processing, various other aspects such as marketing, slaughterhouse preparation, public safety, food analysis, slaughter-house by-product technology, environ-mental impact assessment are available as optional courses to be followed de-pending on the choice of the student.

The laboratory classes provide the hands-on experience in animal product processing. Field visits provide the student much needed exposure to the leading processing plants and slaughterhouses of the country.

** Students holding degrees other than Bachelors Degree in Agriculture and Veterinary Science will be required to follow courses AS 5102, AS 5103 and ST 5254. No credits will be given for following prerequisite courses, but the grades should be a minimum of a 'C' grade. Any other relevant required courses shall be decided by the Board of Study depending on individual cases and on the recommendation of the programme coordinator/advisor.*