**Feed Science and Forage Production**. **HV0166** – **March 24 to June 3, 2021**

**PRELIMINARY**

*Cells in light-blue: activities shared with BI1327 course. Activities in blue letters are pending on confirmation.* **O**: mandatory

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| --- | --- | --- | --- | --- | --- | --- | --- |
| **Month** | **Date** | **Day** | **Time** | **ON-LINE** | **Content** | **Responsible** |  |
| March | 24 | Wed | 08:15-10:00 | Zoom | Introduction, registration, roll-call, study advice | T. Eriksson, H. Gonda, N. Nilsdotter-Linde | **O** |
|  |  |  | 10:15-11:00 | Zoom | **Lecture:** Feed analyses - an introduction | Torsten Eriksson |  |
|  |  |  | 11:15-12:00 | Zoom | **Lecture:** Feedstuff properties  ***Multiple Choice Test (MCT) 1 opens in CANVAS*** | Torsten Eriksson |  |
| March | 25 | Thu | 08:15-12:00 | Zoom | **Lecture:** Plant species utilised and their characteristics | Nilla Nilsdotter-Linde |  |
|  |  |  | 13:15-15:00 | Zoom | **Introduction to group assignment 1: Formulating seed mixtures**  Work with group assignment 1 | Nilla Nilsdotter-Linde | **O** |
|  |  |  | 15:15-17:00 | Zoom | **Lecture:** Crop production and quality dynamics | Anne-Maj Gustavsson |  |
| March | 26 | Fri | 09:15-11:00 | Zoom | **Lecture:** Combining forage species in a seeding mixture | Nilla Nilsdotter-Linde |  |
|  |  |  | 11:15-12:00 | Zoom | **Lecture:** Harvest strategy in a ley | Magnus Halling |  |
|  |  |  | 13:15-16:00 | Zoom-break-out rooms | ***Work with group assignment 1 + reading MCT 1*** | Nilla Nilsdotter-Linde | **O** |
|  | | | | | | | |
| March | 29 | Mon | 08:15-12:00 |  | **Work with group assignment 1 + reading MCT 1** | Nilla Nilsdotter-Linde | **O** |
|  |  |  | 13:15-15:00 |  | **Lecture** and exercise: Ley fertilisation | Pernilla Kvarmo |  |
| March | 30 | Tue | 09:15.10:00 | Zoom | **Lecture:** Nutrient balances on livestock farms | Eva Salomon |  |
|  |  |  | 10:15-12:00 | Zoom | **Lecture:** Organic manure | Eva Salomon |  |
|  |  |  | 13:15-17:00 |  | **Work with group assignment 1 + reading MCT 1** |  |  |
| March | 31 | Wed | 08:15-10:00 | Zoom | **Lecture:** Maize as a forage crop, Swedish experiences | Magnus Halling |  |
|  |  |  | 10:15-12:00 |  | **Work with group assignment 1 + reading MCT 1** |  |  |
|  |  |  | 12:00 |  | ***Group assignment 1*** *– formulating seeding mixture –*  ***deadline for reporting on Canvas*** |  |  |
| April | 1 | Thu | 9:15-10:00 |  | Introducing laboratory videos and lab manuals | T. Eriksson, A-G. Haglund, H. Gonda | **O** |
|  |  |  | 10:00-12:00 |  | Individual study |  |  |
| **April** | **2** | **Fri** |  |  | **Red day** |  |  |
|  | | | | | | | |
| April | **6-9** |  |  |  | **Individual study** |  |  |
| April | 12 | Mon | 13:15-16:00 | Zoom | ***Report of group assignment 1***  ***MCT 1 closes at midnight*** | N. Nilsdotter-Linde, M. Halling | **O** |
| April | 13 | Tue | 10:15-12:00 | Zoom | **Lecture:** Silage making | Rolf Spörndly |  |
|  |  |  | 13:15-16:00 | Zoom | **Lecture:** Silage quality | Rolf Spörndly |  |
| April | 14 | Wed | 09:15-12:00 |  | **Lecture:** Malfermentations  ***Multiple Choice Test (MCT) 2 opens in CANVAS*** | Rolf Spörndly |  |
| April | 15 | Thu | 9:15-11:30 | Zoom | **Lecture:** Sampling, preparation, DM, ash, *in vitro* digestibility of the organic matter (IVDOM) | Torsten Eriksson |  |
|  |  |  | 13:15-14:00 | Zoom | **Lecture:** Fiber analyses & digestibility methods | Torsten Eriksson |  |
| April | 16 | Fri | 09:15-11:00 | Zoom | **Lecture:** Carbohydrates | Horacio Gonda |  |
|  |  |  | 11:15-12:00 | Zoom | **Lecture:** Lignin and cell wall. How to improve the digestibility of plant fibre. | Kamyar Mogodiniyai Kasmaei |  |
|  |  |  |  |  |  |  |  |
| April | 19 | Mon | 10:00-12:00 | Zoom | Discussion on DM, ash and IVDOM calculations and obtained results. Introduce neutral detergent fibre (NDF) raw data. | A-G. Haglund, T. Eriksson, H. Gonda | **O** |
| April | 20 | Tue | 08:00-17:00 |  | Self-study |  |  |
|  |  |  | 13:15-15:00 | Zoom | Complementary discussion on DM, ash and IVDOM. | A-G. Haglund, T. Eriksson, H. Gonda |  |
| April | 21 | Wed | 10:00-12:00 | Zoom | Introduction to *in sacco* incubation method and calculations | Horacio Gonda | **O** |
| April | 22 | Thu | 9:16-11:00 | Zoom | **Lecture:** Ruminant metabolism & research methods | Torsten Eriksson |  |
| April | 23 | Fri | 08:00-17:00 |  | Self-study  ***MCT 2 close at midnight*** |  |  |
|  | | | | | | | |
| April | 26 | Mon | 13:15-15:00 |  | Summing up DM, ash, IVDOM. Discuss NDF results  ***Multiple Choice Test (MCT) Lab opens in CANVAS*** | A-G. Haglund, T. Eriksson, H. Gonda | **O** |
| April | 27 | Tue | 08:00-17:00 |  | Self-study |  |  |
| April | 28 | Wed | 10:00-12:00 | Zoom | Complementary discussion on NDF (remaining DM, ash and IVDOM). | A-G. Haglund, T. Eriksson, H. Gonda |  |
| April | 29 | Thu | 10:00-12:00 | Zoom | **Lecture:** Nitrogen metabolism (ruminants) | Torsten Eriksson |  |
|  |  |  | 13:15-15:00 |  | Discussion on crude protein (CP) calculations and results | Torsten Eriksson | **O** |
| April | **30** | **Thu** |  |  | Free day |  |  |
|  | | | | | | | |
|  | | | | | | | |
| May | 3 | Mon | 08:00-17:00 |  | Self-study |  |  |
| May | 4 | Tue | 9:15-10:00 | Zoom | **Lecture:** Fat analysis | Jorge André |  |
|  |  |  | 10:15-12:00 | Zoom | Summing up CP, discussion on fat calculations and results. | Torsten Eriksson, Jorge A | **O** |
| May | 5 | Wed | 09:15-11:00 | Zoom? | **Lecture:** Forage for horses  **Introduction of group assignment on forage for horses** | Cecilia Müller |  |
| May | 6 | Thu | 08:15-10:00 | Zoom | **Lecture:** Feed processing in the industry | Aleksandar Vidakovic |  |
|  |  |  | 10:15-12:00 | Zoom | **Lecture:** Working in the feed industry | Camilla Knutstedt |  |
|  |  |  | 13:15-17:00 | Feed Sci. Lab/  Recorded | Pelleting and extrusion exercise  **Hand in results on NDF, CP, Fat** | Aleksandar Vidakovic | **O** |
| May | 7 | Fri | 08:15-10:00 | Zoom | **Lecture:** Feed evaluation, diet formulation | Torsten Eriksson |  |
|  |  |  | 10:15-12:00 | Zoom | Feed optimization (Introduction/Excel-Solver) | H. Gonda, T. Eriksson | **O** |
|  |  |  | 13:15-15:00 |  | **Study visit feed factory**  (pending on confirmation) | Camilla Knutstedt, T. Eriksson,  H. Gonda |  |
|  | | | | | | | |
| May | 10 | Mon | 09:55-10:00 | Zoom | **Lecture:** Monogastric diet formulation | Emma Ivarsson |  |
|  |  |  | 10:15-12:00 | Zoom | Feed optimization project | T. Eriksson, H. Gonda |  |
|  |  |  | 13:15-14:00 | Zoom | **Lecture:** Plant defence mechanisms | Horacio Gonda |  |
|  |  |  | 14:15-15:00 | Zoom | **Lecture:** Carnivore metabolism & research methods | Hanna Palmquist |  |
| May | 11 | Tue | 08:00-17:00 |  | Time for work on the Feed optimization project |  |  |
| May | 12 | Wed | 09:15-11:00 | Zoom | Time for questions on feed optimization | H. Gonda, T. Eriksson |  |
| May | 13 | Thu |  |  | **Ascension day** |  |  |
| May | 14 | Fri |  |  | **Free** |  |  |
|  | | | | | | | |
| May | 17 | Mon | 09:15-11:00 | Zoom | **Lecture:** Monogastric metabolism & research methods | Jan Erik Lindberg |  |
|  |  |  | 11:15-12:00 | Zoom | **Lecture:** Feed ethics | Mikaela Lindberg |  |
|  |  |  | 13:15-15:00 |  | **Hand in feed optimization report** |  |  |
| May | 18 | Tue | 09:15-12:00 | Zoom | **Presentation of group assignment: Forages for horses** | Cecilia Müller | **O** |
| May | 19 | Wed | 09:15-12:00 |  | Group wise result compilation |  |  |
| May | 20 | Thu | 08:15-08:30 | Demo area | Introduction of species characteristics | Nilla Nilsdotter-Linde | **O** |
|  |  |  | 08:30-12:00 | Demo area | Field exercises: Species characteristics | Nilla Nilsdotter-Linde | **O** |
|  |  |  | 13:15-15:00 | Zoom | **Lecture:** Determination of botanical composition - weaknesses and possibilities | David Parsons |  |
|  |  |  | 15:15-17:00 |  | Discussion of feed analyses results  **Hand in individual discussion on feed analyses** |  |  |
| May | 21 | Fri | 10:15-12:00 | Zoom | **Presentation of feed optimization** | T. Eriksson, H. Gonda | **O** |
|  |  |  |  |  | **MCT Lab close at midnight** |  |  |
|  | | | | | | | |
| May | 24 | Mon | 09:00-12:00 | AgriLab, Gunsta | Study visit commercial lab  *(pending on confirmation)* | T. Eriksson, H. Gonda |  |
|  |  |  | 13:15-17:00 | Demo area | Individual study on Species characteristics |  |  |
|  |  |  | 14:15-15:00 | Zoom | Time for questions | T. Eriksson, H. Gonda |  |
| May | 25 | Tue | 09:15-10:45 | Recorded | Farm visit, Östanå Farm - organic milk production |  | **O** |
|  |  |  | 11:00-12:00 | Zoom | **Farm visit, Östanå Farm - organic milk production- discussion with the farmer** | Henrik Johansson, T. E., N. N-L, H. G. | **O** |
|  |  |  | 13:15-14:00 | Zoom | Course evaluation | H. Gonda, T. Eriksson |  |
| May | 26 | Wed | 09:15-10:30 | Demo area | Species characteristics – **Test** in the field-Group A | Nilla Nilsdotter-Linde | **O** |
|  |  |  | 10:45-12:00 | Demo area | Species characteristics – **Test** in the field-Group B | Nilla Nilsdotter-Linde | **O** |
| May | 27 | Thu | 09:00-10:30 | Feed Sci. Lab | Exercise on forage quality Group A | Rolf Spörndly | **O** |
|  |  |  | 10:30-12:00 | Feed Sci. Lab | Exercise on forage quality Group B | Rolf Spörndly | **O** |
|  |  |  | 13:15-15:00 | Zoom | Discussion on silage making and big bale silage. | Rolf Spörndly | **O** |
|  |  |  |  |  | ***Scientific writing – scientific papers (BI1327) available for all students*** |  |  |
| May | 28 | Fri |  |  | Individual study |  |  |
|  | | | | | | | |
| May | 31 | Mon | 09:15-10:00 | Zoom | Time for questions (individual study) | H. Gonda, T. Eriksson |  |
| June | 1 | Tue | 09:15-12:00 | Zoom | ***Presentation of Scientific Papers by BI1327 with prepared discussions by HV0166*** | Nilla Nilsdotter-Linde & Magnus Halling | **O** |
| June | 2 | Wed |  |  | Individual study |  |  |
| June | 3 | Thu | 8:15-15:00 | Canvas | **Final examination** |  |  |