

<b>Title</b>	<b>Multivariate Statistical Methods</b>		
<b>Code</b>	3MI09NVC13P		
<b>Prerequisites</b>	Basic mathematics and statistics		
<b>Description</b>	<p>During the semester, based on the knowledge the students have acquired in BSc/MSc/PhD level standard Biometrics and Statistics courses, some chapters of multivariate statistics will be discussed with complex applications in computer lab in a practical way with many examples from agriculture fitted specially to the demands of the students. We use the statistical software IBM SPSS.</p> <p>Discussed topics</p> <ol style="list-style-type: none"> <li>1. Cluster analysis methods: K-means; hierarchical methods, two-way clustering; advantages and disadvantages; similarity and dissimilarity indices; clustering mixed data; representation techniques</li> <li>2. Discriminant analysis and diagnostics</li> <li>3. Data reduction methods: principal component analysis; factor analysis, learning latent structures; spatial rotation; representation; diagnostics</li> <li>4. Data reduction methods applied in general linear models</li> <li>5. Canonical correlation analysis</li> <li>6. Indicator analysis; multivariate techniques in analysis of structures explained by indicators</li> </ol> <p>Learning outcomes: After having completed the course, students will be able to manage multivariate data and to evaluate the observations choosing the appropriate method correctly, moreover, to report the results in a suitable manner. They can apply their skills in publishing scientific papers as they learn how to present and reason their findings and conclusions professionally.</p>		
<b>Lecturer</b>	Dr. Ladányi, Márta PhD, associate professor, head of department		
<b>Semester</b>		<b>Contact hours/week</b>	0+2
<b>Level</b>	PhD	<b>ECTS</b>	6
<b>Teaching and Learning Methods:</b>			
<b>Reading:</b>	<p>Recommended readings:  TABACHNICK B.G. and FIDELL L.S. (2013). Using Multivariate Statistics. 6th ed. Boston, Pearson.  Special handouts are available during the course.</p>		
<b>Assessment:</b>	Grades are given upon a student project report submitted at the end of the semester.		