



UNIVERSITAS INDONESIA
 Faculty of Mathematics and Natural Sciences
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MODULE HANDBOOK

Module designation	<i>Web Mining</i>
Semester(s) in which the module is taught	5
Person responsible for the module	<i>Dr. rer. nat. Hendri Murfi</i>
Language	<i>Indonesia</i>
Relation to curriculum	<i>Elective</i>
Teaching methods	<i>Lecture, Lesson, Project and Presentation</i>
Workload (incl. contact hours, self-study hours)	<i>Total workload: 170 minutes/credit point Contact hours: 50 minutes synchronous and 120 minutes asynchronous (independent study/ reading, doing homework, discussion with peers)</i>
Credit points	3 SKS (4.77 ECTS)
Required and recommended prerequisites for joining the module	<i>Calculus Linear Algebra Algorithm and Programming Numerical Methods</i>
Module objectives/intended learning outcomes	<i>After completing this module, students be able to</i> <ol style="list-style-type: none"> 1. <i>Explain the basic concepts of big data</i> 2. <i>Explain the basic concepts of neural networks and deep learning</i> 3. <i>Explain the basic architectures of deep learning, i.e., convolution neural networks, long-short term memory neural networks, deep autoencoder</i> 4. <i>Explain the application of deep learning in image classification, sentiment analysis, document clustering, and topic detection</i> 5. <i>Apply the deep learning to the real-world dataset</i>

Content	<i>Big data; neural networks, deep learning, convolution neural networks (CNN), long-short term memory (LSTM) neural networks, autoencoder; image classification, sentiment analysis, document clustering, topic detection</i>																												
Examination forms	<i>Essay, Project Report and Oral Presentation</i>																												
Study and examination requirements	<p><i>The final score is the composition of assignments, mid-test scores, and project with the following weight:</i></p> <table style="margin-left: auto; margin-right: auto;"> <tr> <td><i>Assignment</i></td> <td><i>: 20 %</i></td> </tr> <tr> <td><i>Mid-test</i></td> <td><i>: 40 %</i></td> </tr> <tr> <td><i>Project</i></td> <td><i>: 40 %</i></td> </tr> <tr> <td><i>Total</i></td> <td><i>: 100 %</i></td> </tr> </table> <table style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th style="text-align: center;">Mark</th> <th style="text-align: center;">Grade</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">85–100</td> <td style="text-align: center;">A</td> </tr> <tr> <td style="text-align: center;">80–<85</td> <td style="text-align: center;">A-</td> </tr> <tr> <td style="text-align: center;">75–<80</td> <td style="text-align: center;">B+</td> </tr> <tr> <td style="text-align: center;">70–<75</td> <td style="text-align: center;">B</td> </tr> <tr> <td style="text-align: center;">65–<70</td> <td style="text-align: center;">B-</td> </tr> <tr> <td style="text-align: center;">60–<65</td> <td style="text-align: center;">C+</td> </tr> <tr> <td style="text-align: center;">55–<60</td> <td style="text-align: center;">C</td> </tr> <tr> <td style="text-align: center;">40–<55</td> <td style="text-align: center;">D</td> </tr> <tr> <td style="text-align: center;"><40</td> <td style="text-align: center;">E</td> </tr> </tbody> </table>	<i>Assignment</i>	<i>: 20 %</i>	<i>Mid-test</i>	<i>: 40 %</i>	<i>Project</i>	<i>: 40 %</i>	<i>Total</i>	<i>: 100 %</i>	Mark	Grade	85–100	A	80–<85	A-	75–<80	B+	70–<75	B	65–<70	B-	60–<65	C+	55–<60	C	40–<55	D	<40	E
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Reading list	<p><i>[1] I. Goodfellow, Y. Bengio, A. Courville. Deep Learning. MIT Press, 2016.</i></p> <p><i>[2] A. Zhang, Z. C. Lipton, M. Li, A. J. Smola. Dive into Deep Learning, 2020.</i></p> <p><i>[3] Various articles.</i></p>																												