Legende

1. Personal Details

1.1) My program

<table>
<thead>
<tr>
<th>Program</th>
<th>%</th>
<th>n=57</th>
</tr>
</thead>
<tbody>
<tr>
<td>Business Informatics</td>
<td>50.9%</td>
<td></td>
</tr>
<tr>
<td>Mathematics in Business &amp; Econom.</td>
<td>0%</td>
<td></td>
</tr>
<tr>
<td>Data Science</td>
<td>33.3%</td>
<td></td>
</tr>
<tr>
<td>Teacher Training in Informatics</td>
<td>0%</td>
<td></td>
</tr>
<tr>
<td>Teacher Training in Maths</td>
<td>0%</td>
<td></td>
</tr>
<tr>
<td>Business Admin./Econom.</td>
<td>0%</td>
<td></td>
</tr>
<tr>
<td>Business Education</td>
<td>7%</td>
<td></td>
</tr>
<tr>
<td>Culture and Business</td>
<td>0%</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>3.5%</td>
<td></td>
</tr>
</tbody>
</table>

1.2) My anticipated degree

<table>
<thead>
<tr>
<th>Degree</th>
<th>%</th>
<th>n=54</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bachelor</td>
<td>5.6%</td>
<td></td>
</tr>
<tr>
<td>Master</td>
<td>94.4%</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>0%</td>
<td></td>
</tr>
</tbody>
</table>

1.3) My semester

<table>
<thead>
<tr>
<th>Semester</th>
<th>%</th>
<th>n=54</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>72.2%</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>9.3%</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>11.1%</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>1.9%</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>1.9%</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>0%</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>3.7%</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>0%</td>
<td></td>
</tr>
<tr>
<td>&gt;=9</td>
<td>0%</td>
<td></td>
</tr>
</tbody>
</table>

1.4) My Gender

<table>
<thead>
<tr>
<th>Gender</th>
<th>%</th>
<th>n=52</th>
</tr>
</thead>
<tbody>
<tr>
<td>female</td>
<td>38.5%</td>
<td></td>
</tr>
<tr>
<td>male</td>
<td>61.5%</td>
<td></td>
</tr>
</tbody>
</table>
1.5) I am an international exchange student

Yes [ ] 11.5%  n=52
No [ ] 88.5%  

2. Details on your course attendance

2.1) I am taking this course

for the first time [ ] 100%  n=55
again, after already taking this course previously [ ] 0%

2.2) How regularly did you attend this lecture course – how often were you absent from class?

0 [ ] 60%  1 [ ] 21.8%  2 [ ] 13.6%  3 [ ] 3.8%  4 [ ] 1.8%  5 [ ] 1.2%  6 [ ] >=6

mean = 1.9  md = 1  s = 1.4

2.3) If you missed more than three classes, what were the reasons for your absence? (Multiple answers are possible)

There were scheduling conflict with other courses [ ] 1.8%  n=57
Lack of time [ ] 3.5%
Other reasons [ ] 5.3%

2.4) How regularly did you attend the tutorial for this lecture course – how often were you absent from the tutorial? Please leave blank if no accompanying lecture was offered.

0 [ ] 47.2%  1 [ ] 19.2%  2 [ ] 9.3%  3 [ ] 7.5%  4 [ ] 3.8%  5 [ ] 3.6%  6 [ ] 1.8%  7 [ ] >=6

mean = 2.5  md = 2  s = 2

2.5) 1. If you missed more than three classes, what was the main reason for your absences? (Multiple answers are possible)

There were scheduling conflicts with other courses [ ] 5.3%  n=57
I did not need any course credit [ ] 0%
The lecture was sufficient for me to understand the material [ ] 8.8%
Lack of time [ ] 14%

2.6) 1. How often was there a substitute teacher?

0 [ ] 28.6%  1 [ ] 65.3%  2 [ ] 6.1%  3 [ ] 0%  4 [ ] 0%  5 [ ] >=6

mean = 1.8  md = 2  s = 0.6

3. Evaluation of the course

3.1) The instructor explained the educational goals of the course

totally true [ ] 75.9%  not true at all [ ] 3.7%  n=54
mean = 1.3  md = 1  s = 0.5

3.2) A common theme could be perceived in the course.

66% 28.3%  5.7%  0%  0%  5 [ ]

mean = 1.4  md = 1  s = 0.6

3.3) The course was well organized

50.9% 34.5%  12.7%  1.8%  0%  5 [ ]

mean = 1.7  md = 1  s = 0.8
### 3.4) The **structure of the lecture** helped me understand the subject matter

<table>
<thead>
<tr>
<th>Score</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>%</td>
<td>45.5</td>
<td>34.5</td>
<td>18.2</td>
<td>1.8</td>
<td>0</td>
</tr>
</tbody>
</table>

$n=55$

$mw=1.8$

$md=0.8$

### 3.5) The **pace** of the course was appropriate

<table>
<thead>
<tr>
<th>Score</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>%</td>
<td>51.9</td>
<td>29.6</td>
<td>16.7</td>
<td>1.9</td>
<td>0</td>
</tr>
</tbody>
</table>

$n=54$

$mw=1.7$

$md=0.8$

### 3.6) The lectures were **clear and comprehensible**

<table>
<thead>
<tr>
<th>Score</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>%</td>
<td>53.7</td>
<td>35.2</td>
<td>11.1</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

$n=54$

$mw=1.6$

$md=0.7$

### 3.7) The course content was illustrated through the use of **examples**

<table>
<thead>
<tr>
<th>Score</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>%</td>
<td>58.7</td>
<td>27.8</td>
<td>7.4</td>
<td>5.6</td>
<td>0</td>
</tr>
</tbody>
</table>

$n=54$

$mw=1.5$

$md=0.9$

### 3.8) **Summaries and repetition** helped me to remember the subject matter

<table>
<thead>
<tr>
<th>Score</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>%</td>
<td>32.1</td>
<td>39.6</td>
<td>28.3</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

$n=53$

$mw=2$

$md=2$

$s=0.8$

### 3.9) There were opportunities to ask questions

<table>
<thead>
<tr>
<th>Score</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>%</td>
<td>68.5</td>
<td>22.2</td>
<td>5.6</td>
<td>3.7</td>
<td>0</td>
</tr>
</tbody>
</table>

$n=54$

$mw=1.4$

$md=1$

$s=0.8$

### 3.10) The instructor made an effort to **answer questions precisely**

<table>
<thead>
<tr>
<th>Score</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>%</td>
<td>63.0</td>
<td>35.2</td>
<td>1.9</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

$n=54$

$mw=1.4$

$md=1$

$s=0.5$

### 3.11) The instructor tried to make sure students **understood the explanations**

<table>
<thead>
<tr>
<th>Score</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>%</td>
<td>48.1</td>
<td>38.9</td>
<td>11.1</td>
<td>1.9</td>
<td>0</td>
</tr>
</tbody>
</table>

$n=54$

$mw=1.7$

$md=1$

$s=0.8$

### 3.12) Information on the **board/screen** was **legible**

<table>
<thead>
<tr>
<th>Score</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>%</td>
<td>66.7</td>
<td>22.2</td>
<td>9.3</td>
<td>1.9</td>
<td>0</td>
</tr>
</tbody>
</table>

$n=54$

$mw=1.5$

$md=1$

$s=0.7$

### 3.13) Information on the **board/screen** increased my **understanding** of the subject matter

<table>
<thead>
<tr>
<th>Score</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>%</td>
<td>54.5</td>
<td>30.9</td>
<td>12.7</td>
<td>1.8</td>
<td>0</td>
</tr>
</tbody>
</table>

$n=55$

$mw=1.6$

$md=1$

$s=0.8$

### 3.14) The use of **classroom technology** (not including overhead/board) was helpful

<table>
<thead>
<tr>
<th>Score</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>%</td>
<td>62.3</td>
<td>26.4</td>
<td>9.4</td>
<td>1.6</td>
<td>0</td>
</tr>
</tbody>
</table>

$n=53$

$mw=1.5$

$md=1$

$s=0.7$

### 3.15) **Additional documents and downloads** (i.e. copies, scripts, recordings) were **helpful learning tools**

<table>
<thead>
<tr>
<th>Score</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>%</td>
<td>44.4</td>
<td>42.6</td>
<td>11.1</td>
<td>1.9</td>
<td>0</td>
</tr>
</tbody>
</table>

$n=54$

$mw=1.7$

$md=2$

$s=0.7$

### 3.16) The **recommended literature** was **available**

<table>
<thead>
<tr>
<th>Score</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>%</td>
<td>45.1</td>
<td>38.2</td>
<td>9.8</td>
<td>5.9</td>
<td>0</td>
</tr>
</tbody>
</table>

$n=51$

$mw=1.8$

$md=2$

$s=0.8$
3.17) The **recommended literature** helped my learning process

![Survey Result](image1)

3.18) The instructor’s **diction/manner of speaking** was clear

![Survey Result](image2)

3.19) The instructor always seemed to be **well prepared**

![Survey Result](image3)

3.20) I had the impression that the instructor **truly enjoyed teaching**

![Survey Result](image4)

3.21) The **instructor** was willing to tailor lessons to students’ academic interests

![Survey Result](image5)

3.22) The lecture fostered my interest in the course content

![Survey Result](image6)

3.23) The **connection to other courses** was demonstrated

![Survey Result](image7)

3.24) The course topic was **well integrated with other courses**

![Survey Result](image8)

3.25) The **relevance** of the course to educational goals was made clear

![Survey Result](image9)

3.26) I feel that the course content was **important for my future career**

![Survey Result](image10)

4. Evaluation of your own participation

4.1) I asked questions during class

<table>
<thead>
<tr>
<th>Yes</th>
<th>16.4%</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>83.6%</td>
</tr>
</tbody>
</table>

4.2) If not, why not? (Multiple answers are possible)

- My own limited knowledge: 14%
- Lack of self-confidence: 7%
- I already understood everything: 12.3%
- My questions had already been asked by others: 29.8%
- I attempted to find answers myself after class: 45.6%
4.3) What was the average weekly amount of time you spent preparing for and reviewing after the lecture course (not including class time, time in the discussion group/tutorial, or time devoted to completing worksheets)?

<table>
<thead>
<tr>
<th>Time</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>No time at all</td>
<td>10.9%</td>
</tr>
<tr>
<td>2 hours</td>
<td>49.1%</td>
</tr>
<tr>
<td>4 hours</td>
<td>27.3%</td>
</tr>
<tr>
<td>6 hours</td>
<td>12.7%</td>
</tr>
<tr>
<td>8 hours</td>
<td>0%</td>
</tr>
<tr>
<td>10 hours</td>
<td>0%</td>
</tr>
</tbody>
</table>

n=55

4.4) What was the average weekly amount of time you spent completing worksheets (not including class time and time in the discussion group/tutorial)?

<table>
<thead>
<tr>
<th>Time</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>No time at all</td>
<td>14.3%</td>
</tr>
<tr>
<td>2 hours</td>
<td>46.4%</td>
</tr>
<tr>
<td>4 hours</td>
<td>28.6%</td>
</tr>
<tr>
<td>6 hours</td>
<td>8.9%</td>
</tr>
<tr>
<td>8 hours</td>
<td>1.8%</td>
</tr>
<tr>
<td>10 hours</td>
<td>0%</td>
</tr>
</tbody>
</table>

n=56
mw=2,4
sd=0,9

5. Overall evaluation of the course

5.1) The lecture course increased my subject matter knowledge

5.2) I enjoyed attending the lecture course

5.3) I understood the course content

5.4) I would rate the lecture course on a scale of 1 (very good) to 6 (very poor):

6. Evaluation of the classroom conditions and prerequisites

6.1) My previous knowledge was sufficient for mastering the course content

6.2) The technical equipment (overhead, board, projector, microphone) was ready for use when necessary

6.3) The size of the room was appropriate for the course
6.4) The **level of background noise** in the classroom was tolerable

- 41.1% rated it 1
- 42.9% rated it 2
- 12.5% rated it 3
- 3.6% rated it 4
- 0% rated it 5

6.5) The **room fixtures** (chairs, tables, ventilation, light, etc.) were good

- 57.1% rated it 1
- 30.4% rated it 2
- 10.7% rated it 3
- 0% rated it 4
- 1.8% rated it 5
2. Details on your course attendance

2.2) How regularly did you attend this lecture course – how often were you absent from class?

0 >=6
n=55 mw=1.9 md=1.0 s=1.4

2.4) How regularly did you attend the tutorial for this lecture course -- how often were you absent from the tutorial? Please leave blank if applicable.

0 >=6
n=53 mw=2.5 md=2.0 s=2.0

2.6) 1. How often was there a substitute teacher?

0 >=6
n=49 mw=1.8 md=2.0 s=0.6

3. Evaluation of the course

3.1) The instructor explained the educational goals of the course totally true not true at all

n=54 mw=1.3 md=1.0 s=0.5

3.2) A common theme could be perceived in the course.

n=53 mw=1.4 md=1.0 s=0.6

3.3) The course was well organized

n=55 mw=1.7 md=1.0 s=0.8

3.4) The structure of the lecture helped me understand the subject matter

n=55 mw=1.8 md=2.0 s=0.8

3.5) The pace of the course was appropriate

n=54 mw=1.7 md=1.0 s=0.8

3.6) The lectures were clear and comprehensible

n=54 mw=1.6 md=1.0 s=0.7

3.7) The course content was illustrated through the use of examples

n=54 mw=1.6 md=1.0 s=0.9

3.8) Summaries and repetition helped me to remember the subject matter

n=53 mw=2.0 md=2.0 s=0.8

3.9) There were opportunities to ask questions

n=54 mw=1.4 md=1.0 s=0.8

3.10) The instructor made an effort to answer questions precisely

n=54 mw=1.4 md=1.0 s=0.5

3.11) The instructor tried to make sure students understood the explanations

n=54 mw=1.7 md=2.0 s=0.8

3.12) Information on the board/screen was legible

n=54 mw=1.5 md=1.0 s=0.7

3.13) Information on the board/screen increased my understanding of the subject matter

n=55 mw=1.6 md=1.0 s=0.8

3.14) The use of classroom technology (not including overhead/board) was helpful

n=53 mw=1.5 md=1.0 s=0.7

3.15) Additional documents and downloads (i.e. copies, scripts, recordings) were helpful learning tools

n=54 mw=1.7 md=2.0 s=0.7

3.16) The recommended literature was available

n=51 mw=1.8 md=2.0 s=0.9

3.17) The recommended literature helped my learning process

n=51 mw=2.1 md=2.0 s=0.9

3.18) The instructor’s diction/manner of speaking was clear

n=54 mw=1.2 md=1.0 s=0.6

3.19) The instructor always seemed to be well prepared

n=53 mw=1.2 md=1.0 s=0.6
3.20) I had the impression that the instructor truly enjoyed teaching
3.21) The instructor was willing to tailor lessons to students' academic interests
3.22) The lecture fostered my interest in the course content
3.23) The connection to other courses was demonstrated
3.24) The course topic was well integrated with other courses
3.25) The relevance of the course to educational goals was made clear
3.26) I feel that the course content was important for my future career

5. Overall evaluation of the course

5.1) The lecture course increased my subject matter knowledge
5.2) I enjoyed attending the lecture course
5.3) I understood the course content
5.4) I would rate the lecture course on a scale of 1 (very good) to 6 (very poor):

6. Evaluation of the classroom conditions and prerequisites

6.1) My previous knowledge was sufficient for mastering the course content
6.2) The technical equipment (overhead, board, projector, microphone) was ready for use when necessary
6.3) The size of the room was appropriate for the course
6.4) The level of background noise in the classroom was tolerable
6.5) The room fixtures (chairs, tables, ventilation, light, etc.) were good
7. Your suggestions

7.1 In question 5.4, you rated the discussion group/tutorial. What was the main reason for your score?

A bit more in-depth (math) would be cool.
Group project taught much& was good for learning

Overall good lecture to get an overview. Sometimes superficial.

clear structure
good examples
understandable

This course focuses both theory and application.
This quite useful for understanding.

The practical part in the tutorial supported well my understandings.
Nice teacher, many possible options in tutorial.

overall summary,

What I have learned -
Teaching equality -
It's nice! I can really learn something from the course.

His English is quite good and I had learned a lot and I was able to understand what he is trying to say.

Tutorials were overpopulated (python)

Group project interesting, but very unclear expectations
(2) bad timing (why not presented one week earlier rather than a week before exams?)

Previews is well organized but too high level with mostly unhelpful overview of topic.

Comprehensive presentation of topics

I like this course

Course and lecture seemed well prepared, contents were explained well.

Good lecture! More details would be even better!
What did you **like most** during the course?

- content, examples
- good overview
- Python exercises
- practical examples

Well organized course

- interesting topic
- good presentation

Understandable explanations, good examples

Understanding in-depth knowledge of data mining
The given examples

Team project. Freely choose dataset and problem and method to figure things out.

The part of the team project.

Two exercises.

The teacher explains very well.

The professor’s teaching style with real-life examples and a lot of motivation.

Professor and tutors.

The content is interesting!

Having no class after the first half of the class and there were other evaluation factors such as group work which helped me to understand the topic better.
Heiko’s lecturing style

Applicability of content

The topics covered in tutorials and project involved a knowledge of data mining and Python significantly.

It was very well organized.

The opportunity for hands-on experience with Python on real Data Mining Project.

the lectures — they were very understandable and clear

interesting way of teaching

the opportunity to ask questions

I really like the content and the lecturer.
What did you not like during the course?

Rapid miner

Sometimes slides do not focus on the actual subject matter.

The tutorial was ok, but it would be helpful to have an introduction in Python itself.

The introduction of 'python' could be more. For now, it just like directly jumping from '0' to '100'.

The sheets weren't available before the sessions.
Slides not in slides =) Two main points for material...

Some topics were discussed more on the superficial level whereas others were really detailed.

No

Tutorial

Lack of mathematically rigorous content

The room was way too small

Scheduling of project

No one asked coverage, too many topics covered.
Some of the slides are not well referenced, therefore I was having hard time finding the readings associated with lecture slides.

_nearest centroid classification_

Paper limitation with references: 10 pages. References should be for project.

Group project — Edges for topic choice...
- Should be earlier — if in November students need the time to learn...

For the lecture of classification I could not find literature about the comparison of nearest centroid and kNN.

We needed to do a lot of feature selection & preprocessing in the team project, which was not discussed in the course.

Way too many slides per lecture.

Project presentation too close to exams.

too much information / slides for one lecture

While learning I was still confused, because I didn’t get the red line -> maybe more headlines in the slides (with Nr.)

- that the tasks for the laboratory exercise were so late available
What are your suggestions for improvement?

- Add more practical examples, lecture depth may be reduced.

A bit more math would be nice (backpropagation, ...)

No more RapidMiner

Please structure the slides better (e.g. clear sections, subsections)

Cover topics in more detail (decrease width, increase depth)

Further expand on when to use which approach / how to develop a gut feeling for the right algorithm

Python tutorial could explain more basic structure of language combining with model.

see 7.3
But all material can be found in the slides. Add more mail links for exam.

Offer more Python tutorials as the schedule clashed with other courses.

Maybe not that much slides.

The tutorial could be a little bit less of a repetition of the lecture.

Maybe more additional sheet.

Maybe more exercises could be provided for the exam. I do not know what to expect from the exam.

Room space

Start

Scheduling of project - no reason to complete it two weeks earlier. Students will have to use second lecture mostly.

Focus on fewer topics and build up learning from basic principles.

Introduction slides for project should be uploaded earlier.
I would have really appreciated a short introduction into Python as a language, e.g. 1-2 sessions about its syntax and data structures.

Could provide more details (deep due)

Peer Evaluation for the Group Project

- please upload slides/tasks earlier
- explain more in the exercise instead of giving endless working time
- more focus on theoretical models would be nice

- report should be due after exams

assignment, and presentation.