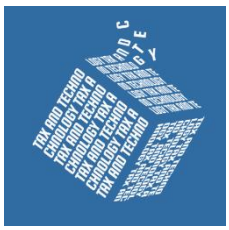
Tax & Technology I

Preliminary

Study Guide

Course 2020/2021

(6 ECTS)



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This study guide consist of the following sections:

A. Introduction

Legal technology is rapidly transforming both the practice and the theory of tax law. As we begin to train the future generation of tax lawyers who understand the intricacies and potential of this development within tax law, this course seeks to explore both the current trends and the future possibilities of this technological transformation.

It is a worldwide trend that tax authorities increasingly use technology to promote compliance. An emphasis is laid upon collecting and managing (big) tax data in order to insure a correct tax payment and detection of fraud. This trend goes hand in hand with further digitalization of information exchange between tax authorities and taxpayers. Industry and business communities also use technology to optimize tax processes and to comply with reporting obligations. This course explores the fiscal and technological aspects that form the foundation of this process.

However, the course does not aim to solely focus on compliance issues but will cover and investigate new possibilities in validation of a broader use of technology in taxation. Beyond the current and near-term technologies there are core academic and philosophical questions that will have increasing impact as machines gain in sophistication and capability. Also the inherent risks and possible setbacks of the new technological approach are to be discussed.

The purpose of the new course is to form a multilateral insight into the processes behind technological approach.

The lesson plan is dynamic and open to possible adjustments. The students are encouraged to contribute to the development of this increasingly important and dynamic technological area.

Please feel welcome to come forward with new ideas. Your willingness to explain concepts from your area of expertise to students from different backgrounds is highly appreciated.

B. Organization

Tax & Technology is split into three 7-week courses, Tax & Technology I and Tax & Technology II and will be cross listed between the Vrije Universiteit Amsterdam (Tax & Technology I), Tilburg University (Tax & Technology TiU II) and the Maastricht University (Computational Science of Taxation). See www.taxandtechnology.com

Courses will consist of 1,5 hours lectures, followed by 1,5 hours tutorials. Tax & Technology I will commence on Friday, September 4, 2020 (10.30 - 13.30) at the Vrije Universiteit Amsterdam. The starting date of Tax & Technology II and Computational Science of taxation will be announced at a later stage.

Location and time

- In view of the Covid-19 measures, the lectures are given online via Zoom and Webcast.
- Zoom Lectures and tutorials, Fridays 10.30 – 13.30, 4 September 2020 – 16 October 2020
- Exam Friday 23 October, 10.30 – 14.30
- Resit Friday 18 December, 12.15 – 16.15

Contacts

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- Roderick Lucas (r.w.lucas@vu.nl)
- Laura Plummer (l.a.plummer@vu.nl) (coordinator)

Office hours: Fridays, 9.00-17.00

Program

Seven lectures are given in real time via Zoom. The last part of these lectures is a tutorial. The Zoom lectures therefore consist of two parts:
10.30 – 11.30 Lecture
11.30 – 11.45 Break
11.45 – 13.30 Tutorial

For the tutorials, the students are divided into two groups. The listings of the groups will be published on due course on Canvas. The lectures via Zoom are **not** recorded.

In addition to the seven lectures via Zoom, four lectures are also given via Webcast. The four lectures via Webcast are recorded and can be viewed at any time. The Webcast lectures support the content of the Zoom lectures.

How the Zoom lectures and Webcast lectures can be followed will be published on Canvas

Course Schedule

Week	Date	Type	Topic	Teacher(s)
1	4 sept	Lecture	Introduction/Data collection	Bomer
		Tutorial		Bomer/Fras
2	11 sept	Lecture	Data collection/Data Exchange	Bomer
		Tutorial		Bomer/Fras
3	18 sept	Lecture	System Integration / ERP systems	Plummer
		Tutorial		Plummer
4	20 sept	Webcast	Real time reporting	*
	25 sept	Lecture	Tax Data processing / ERP systems	Plummer
		Tutorial		Plummer
5	27 sept	Webcast	Tax Accounting / ERP systems	*
	2 oct	Lecture	Tax Statistics	Lucas/Derksen
		Tutorial	Statistics practice	Lucas/Derksen
6	4 oct	Webcast	Programming 101	Lucas/Derksen
	9 oct	Lecture	Computer Science	Lucas/Derksen
		Tutorial	Applied programming	Lucas/Derksen
7	11 oct	Webcast	Tax Data Visualization	*
	16 oct	Lecture	Machine Learning	Lucas/Derksen/*
		Tutorial	Machine Learning hands on!	Lucas/Derksen

Schedule Zoom Lectures

Nr	Date	Topic	Teacher(s)
1	4 sept	Introduction/Data collection	Bomer
2	11 sept	Data collection/Data Exchange	Bomer
3	18 sept	System Integration / ERP systems	Plummer
4	25 sept	Tax Data processing / ERP systems	Plummer
5	2 oct	Tax Statistics	Lucas/Derksen
6	9 oct	Programming fundamentals	Lucas/Derksen
7	16 oct	Machine Learning	Lucas/Derksen/*

Schedule Online (recorded) Lectures

NR	Data of availability	Topic	Teacher(s)
1	20 sept	Real time reporting	*
2	27 sept	Tax Accounting / ERP systems	*
3	4 oct	Programming fundamentals	Lucas/Derksen
4	11 oct	Tax Data Visualization	*

*Guest lecture

C. Examination

Examination materials

- The exam will be based on the materials listed on Canvas. Additional materials may be uploaded to Canvas during the course. These materials will be part of the exam materials as well.
- The content of the lectures is leading for examination purposes. Nevertheless, subjects explained in the prescribed literature that are not covered during the lectures are part of the exam materials as well.
- Your understanding of the examination materials will be tested via open questions and case studies.

Examination procedures

- Starting from lecture 2 (13 September) students will receive an assignment which has to be handed in and for which they will receive a grade.
- The assignments will be published on Canvas.
- The answers must be submitted - via Canvas - **before** 6 pm on the next Wednesday at the latest
- This is an individual assignment. Answers submitted will be checked for plagiarism.
- Participation during the tutorial will also be taken into account and will contribute to the grade.

- In total there are going to be 6 assignments. At least 5 are to be submitted. If a student has failed to submit 5 assignments in time, he will only have a chance to catch up during the resit on 18 December.
- The 5 assignments count for 50%. A single assignment counts for 10%.
- An open book exam will follow after the end of lectures. This counts for 50%. This exam is on Friday 23 October, 10.30 – 14.30 and the resit is on Friday 18 December, 12.15 – 16.15.

D. Course content

D.1 Introduction / Data collection (4 September)

Topics

- Introduction Tax & Technology
- Tax & Technology Cube
- Big Data Process
- 'Real time data' vs periodic data
- Case introduction

Learning goals

- Provide students with a general introduction to the course.
- Understanding the legal framework of data reporting
- Meaning of big data process
- Recognize the impact of the increase of mandatory data reporting

D.2 Data Collection / Data exchange (11 September)

Topics

- SAF-T
- Country-by-Country reporting
- Legal framework data collection and exchange
- Data quality
- Tax Data quality frameworks/ governance

Learning goals

- Gain insight into reporting obligations and exchange of tax data
- Make students aware of the importance of data quality
- Understanding the legal framework of data exchange

D.3 System Integration / ERP systems (18 September)

Topics

- Basics of ERP systems
- System integration with tax Systems

Learning goals

- Gain insight into the architecture of an ERP system and system processing
- Understanding the fundamentals of integrating with tax systems
- Gain insight in difference between the processing of tax master data and transactional data

D.4 Tax Data Processing / ERP systems (25 September)

Topics

- Tax modules (payroll tax, corporate income tax, etc.)
- System Configuration
- Tax Codes

Learning goals

- Understanding critical data elements and processes used for tax compliance
- Relation between master transactional data and reporting

D.5 Tax Statistics (2 October)

Topics

- Basic of statistics
- Probability distributions
- Expected value
- Statistics gone wrong in tax

Learning goals

- Understand the basic concept of tax statistics
- Understand the role of probability calculus in the field of machine learning

D.6 Computer Science (9 October)

Topics

- History
- Data structures
- Algorithmic thinking

Learning goals

- Learning the basics of programming.
- Learn programming dictionary

D.7 Applied Machine Learning in Tax (16 October)

Topics

- Digital Fraud
- Implications of fraud detection
- Implications of dirty data
- Impact on information asymmetry for tax purposes
- Data ethics and security

Learning goals

- Understand basic concepts of machine learning applications
- Understand the possibilities and restrictions of machine learning in tax

Note: We reserve the right to make adjustments to this document.
Any changes will be published on Canvas.

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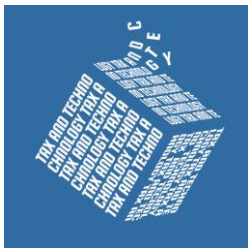

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