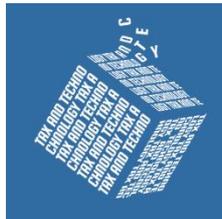# TILBURG ✦ UNIVERSITY

Syllabus Tax & Technology II (TiU)
2020/2021
preliminary

Prof. dr. A.H. Bomer
M.H. Derksen LLM.
K.A. Fras LLM.
R.W. Lucas MSc.
L.A. Plummer MSc.

Course code 695526

1   Tax & Technology as part of the curriculum

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

2   Learning goals

Acquiring in-depth knowledge and understanding of the (innovative) technological aspects that are involved in the field of taxation including big data, blockchain, artificial intelligence. At the end of the course, the student should be able to thoroughly analyze and interpret literature and legal sources in the field of technology and taxes and to ask critical questions about this. The student should also be able to apply knowledge of relevant technologies in complex tax cases and to offer creative solutions.

3   Content

Tax & Technology is split into two 7-week courses, Tax & Technology I and Tax & Technology II and is cross listed between the Vrije Universiteit Amsterdam (Tax & Technology I) and Tilburg University (Tax & Technology TiU). Courses will consist of 1,5 hours lectures, followed by 1,5 hours tutorials. It is not necessary to complete the course Tax & Technology I (VU) to participate in this course.

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 are **not** recorded.

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

The lesson plan is dynamic and is open to possible adjustments. See the below schedule for the current program. The students are encouraged to contribute to the development of this increasingly important and dynamic technological area.

Preliminary schedule

In view of the corona measures, the lectures and tutorials are given on line.

Course	Date	Time	Topics
1	7 April	9.45 – 12.30	Legal Research,
2	14 April	9.45 – 12.30	Big Data
3	21 April	9.45 – 12.30	Machine Learning
4	28 April	9.45 – 12.30	Deep Learning
5	6 May	9.45 – 12.30	Legal Prediction
6	12 May	9.45 – 12.30	Blockchain
7	19 may	9.45 – 12.30	Legal Protection
	14 June		Paper deadline
	17 June		Presentations
	23 June		Presentations
	30 June		Presentations

Please monitor https://rooster.uvt.nl for potential changes.

Paper

After the lectures have ended, the students must write a paper of max 15 pages / 6000 words (excluding cover page, table of contents, etc) in groups of two (1 paper per two students). The scope is a guideline, it is ultimately about the quality of your work, not the quantity. The papers are written on the basis of a formulated assignment / problem statement. The student has a choice of different subjects, but the number of students per subject is bound to a maximum. The topics will be announced via Canvas.

The paper must be handed in no later than June 14, 2021 at noon. The paper is subsequently sent to all class participants assigned in the same group. Each participant should read all papers from the same group and think of at least two questions per paper.

For resit in the examination period, the paper must be submitted on a date to be determined by the lecturer.

Note: The first sheet of the paper should mention: title of the paper, name, uvt e-mail address, telephone number(s), study direction(s) and administration number of the student.

Presentation

As a result of the research and the paper, the makers of a paper will give a 10-minute presentation (i.e. each student about 5 minutes) followed by about 10 minutes of debate and evaluation. The presentations are held in groups of about 6 students. In view of the corona measures, the presentations are given on line.

For the debate to run smoothly, the other students are expected to study the papers of fellow students and to prepare questions. To this end, the papers will be distributed to fellow students well before the presentation day. The groups will be composed in such a way that as

many different assignments / problems as possible are addressed so that the learning effect and the variety for the students are maximal.

The groups and the schedule of the presentation days will be announced via Canvas.

At the end of the presentation day, the student will receive an indication of the grade for the paper and the report.

Around the middle of the lecture cycle, a separate document will be placed on Canvas about paper and presentation, which includes the subjects.

Participant system

Optionally, participants can participate in the participant system to obtain a 0.5 credit point. This means, among other things, the lecture attendance (on line) and class participation are mandatory. See section 6.

4   Study material and literature

A Canvas page is used to support the education. You can find the course via the course ID "695526-M-6".

Literature (preliminary)

Below you will find the prescribed literature per lecture. Unless mentioned otherwise, literature should be studied prior to the lecture as it is to be used as research material for your essay. All study material will be published on Canvas.

Day 1 – Introduction / Legal Research

Mandatory

- Bomer, A.H, Tax & Technology Cube, blog, 22 July 2019, http://taxandtechnology.com/post/tax-technology-cube
- Bomer, A.H., Real-time data gathering, blog, 13 January 2020, http://taxandtechnology.com/post/real-time-data-gathering
- Lucas, R., The unhurried acceptance of AI in the legal profession, blog, 5 november 2019, http://taxandtechnology.com/post/the-unhurried-acceptance-of-ai-in-the-legal-profession
- Pasch, Van der J., Why Algorithms are Dangerous. Don't forget the human, blog 1 December 2019 http://taxandtechnology.com/post/why-algorithms-are-dangerous-dont-forget-the-human
- Santokhi, The Silent AI Workforce, blog, 23 December 2019, http://taxandtechnology.com/post/the-silent-a-i-workforce
- Custers B.H.M. (2018), Methods of data research for law. In: Mak V., Tjong Tjin Tai E., Berlee A. (Eds.) Research Handbook in Data Science and Law. Research Handbooks in Information Law Cheltenham: Edward Elgar. 355-377, https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3411873
- Hoffmann-Riem W., (2020). Legal Technology/Computational Law: Preconditions, Opportunities and Risks. Journal of Cross-Disciplinary Research in Computational Law 1 (1), available at: https://journalcrcl.org/crcl/article/view/7.

Recommended

- Russia's role in producing the taxman of the future, Financial Times, 29 July 2019 See Canvas

Day 2 - Big Data

Recommended

- Cockfield, Arthur, Big Data and Tax Haven Secrecy (2016). Florida Tax Review, Vol. 18, pp. 483-539, 2016. Available at SSRN: https://ssrn.com/abstract=2757268
- Houser, Kimberly and Sanders, Debra, The Use of Big Data Analytics by the IRS: What Tax Practitioners Need to Know (February 8, 2018). Houser, Kimberly and Sanders, Debra, The Use of Big Data Analytics by the IRS: What Tax Practitioners Need to Know (February, 2018). Journal of Taxation, Vol. 128, No. 2, 2018. Thomas Reuters/Tax & Accounting. . Available at SSRN: https://ssrn.com/abstract=3120741
- Houser, Kimberly and Sanders, Debra, The Use of Big Data Analytics by the IRS: Efficient Solution or the End of Privacy as We Know it? (March 29, 2017). Vanderbilt Journal of Entertainment & Technology Law, Vol. 19, No. 4, 2017. Available at SSRN: https://ssrn.com/abstract=2943002
- Thimmesch, Adam B., Transacting in Data: Tax, Privacy, and the New Economy (February 29, 2016). 94 Denv. L. Rev. 145 (2016). Available at SSRN: https://ssrn.com/abstract=2645078 or http://dx.doi.org/10.2139/ssrn.2645078
- Petutschnig, Matthias, Future Orientation and Taxes: Evidence from Big Data (February 2015). WU International Taxation Research Paper Series No. 2015 - 08. Available at SSRN: https://ssrn.com/abstract=2563548 or http://dx.doi.org/10.2139/ssrn.2563548

Day 3 – Machine Learning

Recommended

- Katz DM, Bommarito MJ II, Blackman J (2017) A general approach for predicting the behavior of the Supreme Court of the United States. PLoS ONE 12(4): e0174698. https://doi.org/10.1371/journal.pone.0174698
- Aletras N, Tsarapatsanis D, Preoţiuc-Pietro D, Lampos V. 2016. Predicting judicial decisions of the European Court of Human Rights: a Natural Language Processing perspective. PeerJ Computer Science 2:e93 https://doi.org/10.7717/peerj-cs.93
- Alarie, Benjamin and Niblett, Anthony and Yoon, Albert, How Artificial Intelligence Will Affect the Practice of Law (November 7, 2017). Available at SSRN: https://ssrn.com/abstract=3066816 or http://dx.doi.org/10.2139/ssrn.3066816
- Scherer, Matthew U., Regulating Artificial Intelligence Systems: Risks, Challenges, Competencies, and Strategies (May 30, 2015). Harvard Journal of Law & Technology, Vol. 29, No. 2, Spring 2016. Available at SSRN: https://ssrn.com/abstract=2609777 or http://dx.doi.org/10.2139/ssrn.2609777
- Braun Binder, Nadja, AI and Taxation: Risk Management in Fully Automated Taxation Procedures (October 1, 2018). Available at SSRN: https://ssrn.com/abstract=3293577 or http://dx.doi.org/10.2139/ssrn.3293577
- Surden, Harry, Machine Learning and Law (March 26, 2014). Washington Law Review, Vol. 89, No. 1, 2014. Available at SSRN: https://ssrn.com/abstract=2417415

Day 4 – Deep learning

Recommended

- Remus, Dana and Levy, Frank S., Can Robots Be Lawyers? Computers, Lawyers, and the Practice of Law (November 27, 2016). Available at SSRN: https://ssrn.com/abstract=2701092 or http://dx.doi.org/10.2139/ssrn.2701092

- Carvalho, Lucas de Lima, Spiritus Ex Machina: Addressing the Unique BEPS Issues of Autonomous Artificial Intelligence by Using 'Personality' and 'Residence' (January 2, 2019). Available at SSRN: https://ssrn.com/abstract=3306427 or http://dx.doi.org/10.2139/ssrn.3306427

Day 5 – Legal Prediction

Mandatory
- Katz, Daniel Martin, Quantitative Legal Prediction – or – How I Learned to Stop Worrying and Start Preparing for the Data Driven Future of the Legal Services Industry (December 11, 2012). Emory Law Journal, Vol. 62, 2013, Available at SSRN: https://ssrn.com/abstract=2187752
- Alarie, Benjamin and Niblett, Anthony and Yoon, Albert, Using Machine Learning to Predict Outcomes in Tax Law (December 15, 2017). Available at SSRN: https://ssrn.com/abstract=2855977 or http://dx.doi.org/10.2139/ssrn.2855977
- Loevinger, Lee, "Jurimetrics: Science and Prediction in the Field of Law" (1961). Minnesota Law Review. 1799. https://scholarship.law.umn.edu/mlr/1799
- K Stoykov and S Chelebieva 2019 *IOP Conf. Ser.: Mater. Sci. Eng.* 618 012037. https://iopscience.iop.org/article/10.1088/1757-899X/618/1/012037

Recommended

- All the blogs on: https://medium.com/legal-technology/

Day 6 – Blockchain

Mandatory

- Fras, K.A., Blockchain in Taxation, blog, 11 February 2020 http://taxandtechnology.com/post/blockchain-in-taxation

Recommended
- Fenwick, Mark and Kaal, Wulf A. and Vermeulen, Erik P.M., Legal Education in the Blockchain Revolution (March 22, 2017). U of St. Thomas (Minnesota) Legal Studies Research Paper No. 17-05. Available at SSRN: https://ssrn.com/abstract=2939127 or http://dx.doi.org/10.2139/ssrn.2939127
- Wright, Aaron and De Filippi, Primavera, Decentralized Blockchain Technology and the Rise of Lex Cryptographia (March 10, 2015). Available at SSRN: https://ssrn.com/abstract=2580664 or http://dx.doi.org/10.2139/ssrn.2580664
- Ainsworth, Richard Thompson and Alwohaibi, Musaad, Blockchain, Bitcoin, and VAT in the GCC: The Missing Trader Example (February 16, 2017). Boston Univ. School of Law, Law and Economics Research Paper No. 17-05. Available at SSRN: https://ssrn.com/abstract=2919056 or http://dx.doi.org/10.2139/ssrn.2919056
- Ainsworth, Richard Thompson and Shact, Andrew, Blockchain (Distributed Ledger Technology) Solves VAT Fraud (October 17, 2016). Boston Univ. School of Law, Law and Economics Research Paper No. 16-41. Available at SSRN: https://ssrn.com/abstract=2853428 or http://dx.doi.org/10.2139/ssrn.2853428
- European Union - Proposal for an Automated Real-Time VAT Collection Mechanism in B2C E-Commerce Using Blockchain Technology, available at IBFD database
- Demirhan H., (2019), Effective Taxation System by Blockchain Technology, chapter in the book "Blockchain Economics and Financial Market Innovation",available at the library database

Day 7 – Legal Protection

Mandatory
- Will follow later.

Recommended

- OECD (2017), The Changing Tax Compliance Environment and the Role of Audit, OECD Publishing, Paris.
- OECD (2016), Rethinking Tax Services: The Changing Role of Tax Service Providers in SME Tax Compliance, OECD Publishing, Paris.
- IOTA (2017), Disruptive Business Models, Challenges and Opportunities for Tax Administrations, Budapest.

- OECD (2020), Tax Administration 3.0: The Digital Transformation of Tax Administration, available at: http://www.oecd.org/tax/forum-on-tax-administration/publications-and-products/tax-administration-3-0-the-digital-transformation-of-tax-administration.pdf

In addition, the university library is one of the learning tools. Consultation of the library is particularly important in the preparation of the lecture, the preparation of the assignments and the research for the paper.

5   Testing

Knowledge, insight and skills are tested on the basis of the paper and the presentation. The structure of the figure is as follows. The figure for the paper counts for 0.75 for the determination of the final mark. The grade for the presentation and debate counts for 0.25 for the determination of the final mark. Optionally, participants can participate in the participant system to obtain a 0.5 credit point. See further section 6.

6   Participant system Tax & Technology TiU

Conditions

The Tax & Technology (TiU) classes will be given using the participant system. This means the following.

- Starting from lecture 2 (14 April) students will receive an assignment which has to be handed in.
- The student will provide the written, based elaboration of the specified issues in preparation for the lecture.
- The assignments will be published on Canvas.
- The answers must be submitted - via Canvas - **before** 4 pm on the next Monday 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.
- In total there are going to be 6 assignments. At least 5 are to be submitted.

Participation in the participant system assumes presence and sufficient participation in the lectures. At each lecture questions can be asked about the submitted assignment. This is expressly meant as an individual assessment. By participating in the participant system it is possible to obtain a credit.

A credit is awarded if:

1. The student is present at all lectures (starting with lecture 2); and

2. the student is able to give a sufficient oral explanation during the lecture; and
3. the student submits the written answers (in preparations of the lectures) on time.

One can therefore 'miss' one lecture on all components (attendance, written and oral) (lectures 2 through 7) and still obtain a credit. Absence at a lecture in one week and, for example, an insufficient oral explanation at a lecture in another week, however, means that no credit can be granted. It should be emphasized that no exceptions are made with regard to the conditions mentioned under 1 to 3, even if the absence is caused by examinations, work obligations, student activities, illness, funerals, etc.

The credit is 0.5 point and is added to the number (paper + report). In case of doubt, the effects of the submitted issues can be decisive.

Final comments

Finally, it should be noted that participation in the participant system is not mandatory. However, if you participate in the participant system, you are expected to comply with the rules.

7   Lecturers and coordination

Lecturers are prof. dr. A.H. (Albert) Bomer (a.h.bomer@uvt.nl) (coordinator), L.A. (Laura) Plummer MSc (L.A.Plummer@uvt.nl) (coordinator), R.W. (Roderick) Lucas MSc (R.W.Lucas@uvt.nl), M.H. (Marc) Derksen LLM (M.H.Derksen@uvt.nl), K.A. (Kat) Fras LLM (K.A.Fras@uvt.nl). There will be additional teachers coming from practice and science. The most suitable teacher for a specific subject will be chosen.

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

www.taxandtechnology.com