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Syllabus Tax & Technology (TiU) 2018/2019

Course code 695526

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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) tot participate in this course.

Because this is the first time this course is being offered, 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 the this increasingly important and dynamic technological area.

Preliminary schedule

| Course | Date | Time | Topics |
|--------|----------|---------------|---------------------------|
| 1 | 10 April | 10.45 – 13.30 | Programming 102 |
| 2 | 17 April | 10.45 – 13.30 | Privacy & Confidentiality |
| 3 | 24 April | 10.45 – 13.30 | Robotics & Blockchain |
| 4 | 1 May | 10.45 – 13.30 | Tax Data Security |

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|---|---------|---------------|------------------|
| 5 | 8 May | 10.45 – 13.30 | Big Data |
| 6 | 15 May | 10.45 – 13.30 | Machine learning |
| 7 | 22 may | 10.45 – 13.30 | Deep Learning |
| | 14 June | | Paper deadline |
| | 19 June | | Presentations |
| | 21 June | | Presentations |
| | 26 June | | Presentations |

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

Paper

After the lectures have ended, the students must write a paper of around 15 pages / 6000 words (excluding cover page) 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 Blackboard.

The paper must be handed in no later than June 14, 2019 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.

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 student can use a blackboard and a beamer. The beamer is connected to a computer with internet and can also be connected to a personal laptop via a VGA cable.

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

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 Blackboard 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 and class participation are mandatory. See section 6.

4 Study material and literature

A Blackboard page is used to support the education. Blackboard can be reached via <https://edubb.uvt.nl/>. You can register for the Blackboard page of the course via: <https://edubb.uvt.nl/webapps/blackboard/execute/viewCatalog?type=Course>. You can find the course via the course ID "695526-M-6".

Literature

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.

Course 1 – Programming 102

Recommended

- Any online python course (for example: www.codecademy.com or www.coursera.com)

Course 2 - Privacy & Confidentiality

Mandatory

- C. Dimitropoulou, S. Govind, L. Turcan, Applying Modern, Disruptive Technologies to Improve the Effectiveness of Tax Treaty Dispute Resolution: Part 1, Intertax, 2018, Volume 46, Issues 11.
- L.E. Sheppard, Transfer Pricing Compliance Disrupted, Tax notes International, April 9, 2018.
- K. Bronzewska, Introduction of the Standard Audit File for Tax (SAF-T), European Taxation, December 2016

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.

Course 3 – Blockchain

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

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and Economics Research Paper No. 16-41. Available at SSRN:

<https://ssrn.com/abstract=2853428> or <http://dx.doi.org/10.2139/ssrn.2853428>

Course 4 – Tax data security

Mandatory

- F. Debelva & I. Mosquera, Privacy and Confidentiality in Exchange of Information Procedures: Some Uncertainties, Many Issues, but Few Solutions, *Intertax* 2017 Volume 45, Issue 5.

Course 5 – 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>

Course 6 – 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, Preotjuc-Pietro D, Lamos 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>

Course 7 – 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>

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. If necessary, other libraries can also be consulted.

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.

Students participating in the lectures are groups of up to three people (student workgroups). The student working groups provide the written, group-based elaboration of the specified issues in preparation for the lecture. The effects are examined randomly and are not returned to the students.

Participation in the participant system assumes presence and sufficient participation in the lectures. At each lecture an attendance list is circulated and questions can be asked about the submitted assignment. This is expressly meant as an individual assessment and can therefore not consist of reading out the group-formulated answer. 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 on 17 April); 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.

Register groups participant system

As a group of three persons you must register by e-mail no later than Friday, April 12, 2019 via [link will be published later].

Note: The registration must contain the following information:

- Participants (both first and last name) participating students
- ANR participating students
- Participating e-mail addresses
- Study participating students (tax law, fiscal economics or external participant)

Handing in questions

Each group must submit the detailed questions by e-mail on the Monday before the lectures before 4 p.m. The answers must be sent to: [address will be published later].

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), R.W. (Roderick) Lucas MSc (R.W.Lucas@uvt.nl) and M.H. (Marc) Derksen LL.M. (M.H.Derksen@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 Blackboard.