

**2021\_S02\_PGE\_M1\_FIN\_0616\_E\_L\_BOD**

**FinTech and Digital Banking**

**2020-2021**

|                     |                        |
|---------------------|------------------------|
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| <b>PROFESSORS</b>   | Prof. Dr. Edward Sun   |
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| <b>COURSE DELIVERABLE</b> | <b>DUE DATE</b> | <b>WEIGHT ON FINAL GRADE</b> |
|---------------------------|-----------------|------------------------------|
| Final Exam                |                 | 100%                         |
|                           |                 |                              |

**Kedge Business School and its professors, encourage you to use your Pro-Acts, company projects and internships as privileged opportunities to apply the reflexions, theories, concepts and tools presented during this course**

## INTRODUCTION AND OBJECTIVES

### *Course Purpose & Objectives*

During the 2010s, many financial services emerged which can be grouped as "Fintech". However it is regulations as the European Payment Services Directive, which promise to open the gateways for rapid growth through a legally enforced deregulation, as they break up the formerly monolithic services and turn them into distributed and decentralized Cloud-based value chains, where Banking is provided online *as-a-service*. An evolution like the Telecommunication sector during the 1990s and 2000s is likely to follow, with a fragmented, more dynamic, more competitive and more value-adding financial market. This course is designed to provide an understanding of technical fundamentals for prospective users of digital platforms, such as investors, creditors, employees, and other stakeholders (e.g., suppliers, customers). The course focuses on understanding how the information technology, Internet of Things (IoT) technology, Artificial Intelligence (AI) technology, and big data technology are applied in financial sector. Students will develop the strategic skills needed to apply above-mentioned technologies and for financial practice.

### *Courses contribution to program objectives*

The course is based on several preliminary courses such as Management Information System, Banking and Finance, and Business Mathematics and Statistics, which students should complete first. In this course, students will learn how to formulate business decision and implement advanced technologies based on the information provided by big data. These skills will help students make more informed decisions optimally by using big financial data.

Following our “*complex package*” approach to international management (*see Bartlett & Ghoshal above*), this course contributes to four of the learning goals, albeit in varying degrees, of the PGE program.

**LG1. Understand the fundamentals of management and management techniques.**

**LG5. Integrate diversity and the globalized environment into one's management practice**

**LG6. Know the concepts and tools of management and apply them to sector-based specifics**

**LG7. Bring added value to the professional community in the chosen sector-based specifics**

Under international business academic simulation conditions, where return on effort as well as success can be measured by participants in the form of qualitative feedback from fellow students and from the professor (ultimately in terms of grades), having to learn, internalize, and apply international management foundations and international business techniques, implemented in individual, subgroup, and collective manners, in classes formed by individuals from up to 10 different nationalities, allows for reaching this learning goal without doubt.

As mentioned above, each subgroup operates as an individual firm. The subgroup's ultimate success depends not only on mastering international business skills, but,

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moreover, on group members' ability to behave and work as a team as well as to assume individual and collective leadership for assigned subgroup responsibilities.

This is simply, and directly, achieved through the interaction of participants during the term. Students of up to ten different countries have attended this course during a given semester. The average international diversity is of six nationalities, during the last five editions of the course. Moreover, the setting, and the objective of the course target this learning objective in a most relevant manner.

### ***Course Contribution to Application of Critical Thinking***

Master the technical skills needed to analyze financial technical operations, and learn how FinTech and managerial incentives strategically affect the financial decision process. By the end of this course, students will be able to apply these skills to a real-world business challenge.

### ***Courses description***

1. Banking business and international banking system.
2. Digitalisation and online platforms.
3. Probability theory applied in banking.
4. Computational methods in banking.
5. Artificial intelligence applications.
6. Compliance and regulatory supervision.

## **COURSE MATERIAL**

### ***Textbooks***

### ***Websites***

## ***SUPPLEMENTARY READINGS***

***Lecture notes and exercises (Banking 101) distributed in the class***

***References : online at learning forum run by KEDGE***

**COURSE CONTENTS AND TIMETABLE**

| <b>SESSIONS</b> | <b>TOPIC</b>  | <b>PRELIMINARY READING(S)<br/>AND ASSIGNMENTS</b> | <b>ADDITIONAL READING(S)<br/>AND ASSIGNMENTS</b> |
|-----------------|---|---|--|
| <b>1-2</b>      | Banking Business and International Banking ;<br><br>Digital transformation in financial sector. | Lecture note 1, 2                                 | Reading articles                                 |
| <b>3-4</b>      | Business with FinTech   | Lecture note 3                                    | Reading articles                                 |
| <b>5-6</b>      | Advanced FinTech tools  | Lecture note 4                                    | Reading articles                                 |
| <b>7-8</b>      | Artificial Intelligence Applications in Banking<br><br>Compliance and Regulatory supervision    | Lecture note 5, 6                                 | Exercises : Banking 101                          |
| <b>9-10</b>     | Review, exercises, and Financial Exam   |   | Answers to Banking 101, Exam                     |
|                 |   |   |  |

## TEACHING APPROACH/ INSTRUCTIONAL METHODS

### *A Word of Advice*

Knowledge of strategic decision-making techniques is necessary for managing international business correctly. These techniques vary from one market and trading instrument to another. This is why participants are advised to carefully prepare each session and to ensure that their doubts have been addressed in class. During the 1<sup>st</sup> part of each session the Professor will provide further in-depth and practical explanation of the concepts to be prepared for the session following, as well as, if necessary, explanations about the proposed solutions for in-class examples and/or cases. During the 2<sup>nd</sup> part, participants will work in subgroups on their own project benefiting of the Professor's tutoring at subgroup level (group work).

### *Organization of the sessions*

50% lecturing and 50% cases/exercises

Input :

- Professor: Explains how past material is linked to the day's agenda and subgroup work

Presents the session's material

Explains how the days content completes past material

Presents perspectives of how the present and past material link to future course content

- Students: Ask questions and request clarifications at the end of the professors' presentation

Feedback:

- Students: When needed, request additional explanations on past sessions;

Expose their questions for the session's agenda.

- Professor: When needed, extends additional insight on past material

Presents the session's agenda, and answer student's questions for the present session.

### *Individual Assignments*

Exercises/cases (Banking 101). Each student is expected to solve all questions distributed.

## EVALUATION OF STUDENT PERFORMANCE

### *Final exam : Multiple choice questions (50%) and one essay (50%).*

There are two sections in the exam:

Section A (10/20 points): 25 choices (QCM) questions;

Section B (10/20 points): Calculation.

### *Criteria of evaluation (For every control )*

| Section                      | Marks     | Criteria                                |
|------------------------------|-----------|---|
| 25 Multiple choice Questions | 0.4*25=10 | All correct                             |
| Calculation                  | 10*1=10   | Exhibit outstanding strategic reasoning |

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|             |         |                                  |
|-------------|---------|----------------------------------|
| Calculation | $8*1=8$ | Exhibit good strategic reasoning |
| Calculation | $6*1=6$ | Can exhibit strategic reasoning  |
| Calculation | $4*1=4$ | Understandable                   |

And/Or

*Assessment Criteria*

| Section         | Marks | Criteria |
|-----------------|-------|----------|
| Correct answers | 20    | 100%     |
|                 | 16    | 85%      |
|                 | 14    | 75%      |
|                 | 12    | 60%      |
|                 | 10    | 50%      |



## **BIOGRAPHY**

Prof. Dr. Edward Sun is currently the Senior Professor of Data Science & FinTech at KEDGE Business School, France. He was an adjunct professor at KIT, Germany as well as the HSBC Endowed Visiting Chair Professor in Taiwan and South Africa. Prior to joining KEDGE, Prof. Dr. Sun was a senior professor of finance at BEM Management School, France and visiting professor at Vlerick Management School, Belgium, and EDHEC Nice, France. Prof. Dr. Sun received his BSc, MSc and Ph.D. in Germany. His dissertation is on statistics and mathematical Finance with summa cum laude completed at University of Karlsruhe (TH), one of the first three elite universities in Germany. His principal doctoral supervisor is Prof. S. T. Rachev (Professor Emeritus at University of California Santa Barbara and professor of finance at the College of Business at Stony Brook University New York, USA) who completed doctoral work under supervision of L. Kantorovich, a Nobel Prize winner in economic sciences in 1975, and A. Kolmogorov, a 20th-century Russian mathematician who made significant contributions to the mathematics. Prof. Sun's research interests are Applied Mathematics and Operations Research, Artificial Intelligence, Business Analytics, Data Mining, Financial Institutions and Markets, and Risk Management. He has published his research in different journals such as European Journal of Operational Research, International Journal of Production Economics, Annals of Operations Research, European Financial Management, Journal of International Money and Finance, Computational Economics, and Study in Nonlinear Dynamics and Econometrics, among others.

## ACADEMIC FRAUD

### *Definition*

Academic fraud is a breach of ethics.

*“Is achieved using unfair means or deception, to obtain material or undue moral advantage, or with the intent to avoid the enforcement of laws”. (Translated from the original source: Dictionnaire Juridique des Lois, 2010, available at: [www.dictionnaire-juridique.com/definition/fraude/php](http://www.dictionnaire-juridique.com/definition/fraude/php))*

Plagiarism consists of attributing authorship by (partial or total) copying, imitation or misappropriation.

The act of fraud is committed by one or more students/participants when they:

- appropriate written or oral work to themselves when they are not the author (in whole or in part) of the work, by omitting any references or quotations to the author or to the owner of the work;
- present any data that has been falsified or invented in any way;
- use the identity of the author, attributing the contents of and/or a resource to him/her, but without explicitly mentioning that they are not the author;
- appropriate the creative work of someone else and present it as their own;
- acquire excerpts of texts, images, results etc. from external sources by including them in their own work without mentioning the origins of the excerpts;
- summarise the original idea of an author by expressing it in their own words but omit quoting the source;
- cheat in an academic evaluation.

Plagiarism can occur in:

- an academic article or book;
- an exercise or a case study;
- a study or a report;
- a dissertation or a thesis;
- any document of which the student/participant is not, but purports to be the author.

### *Sanctions*

Any student/participant having committed academic fraud, or having participated in it, will be sanctioned by the professor in charge of the course. The professor can apply 1<sup>st</sup> and 2<sup>nd</sup> level sanctions (detailed below). The professor will send a copy of the sanction to the student's/participant's programme. The student/participant will be informed/and or convoked by the programme director (or his/her representative) to a hearing prior to the possible convening of the Kedge Business School Disciplinary Council. In the case of a hearing of the Disciplinary Council, they can decide to apply 3<sup>rd</sup> and 4<sup>th</sup> level of sanctions.

Any student/participant guilty of academic fraud will receive one of the following sanctions:



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- Applied by the professor in charge of the course, Kedge Business School faculty member (1st and 2<sup>nd</sup> level):
  - A grade of zero for the work concerned and a formal warning;
  - A grade of zero for the course or module concerned and a formal warning.
- Applied by Kedge Business School's Disciplinary Council (3<sup>rd</sup> and 4<sup>th</sup> level):
  - Suspension from the programme for one or two semesters;
  - Exclusion from the programme.

N.B.: Plagiarism within a partner institution can result in these sanctions being applied by Kedge Business School, notwithstanding partner's decision.