

# Financial Modeling in Excel

## Module 2, 2022-2023

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### Course description

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The course is dedicated to practical experience for models' implementations in Excel. Problems collected from real applications used in different industries.

### Course requirements, grading, and attendance policies

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You need to have a laptop to perform modeling exercise (better English Excel for Windows).

The course grade consists of:

- 1) 50% – 5 homework assignments (10% each) after week 1 - week 5.
- 2) 40% – individual project on Kaggle data modeling with presentation in class.
- 3) 10% – topic selection for project (till 6 Nov)

### Course contents

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| <b>1</b><br><b>(Oct 31)</b> | Arrays and data management <ol style="list-style-type: none"><li>1. Shortcuts (excel without mouse), names</li><li>2. Data import (from web, file links, databases)</li><li>3. Database management (plain lists, relations, storing, editing, navigation)</li><li>4. Specification and design of models, useful hints</li><li>5. Array formulas (matrix formulas for regression)</li></ol> |
| <b>2</b><br><b>(Nov 7)</b>  | Functions <ol style="list-style-type: none"><li>1. Basic Excel functions (string, vlookup, offset, indirect) in Use</li><li>2. Indirect file link. Model version control.</li><li>3. Pivots</li></ol>  |
| <b>3</b><br><b>(Nov 14)</b> | VBA <ol style="list-style-type: none"><li>1. Syntaxes, main objects, user defined functions</li><li>2. Recorder, debugger</li><li>3. Events and objects</li><li>4. Popular macros (scenarios, calculation)</li><li>5. Macro to collect data from other files</li></ol>   |
| <b>4</b><br><b>(Nov 21)</b> | Data analysis <ol style="list-style-type: none"><li>1. Sensitivity analysis</li><li>2. Linear programming problem (solver)</li><li>3. Regressions and data analysis</li></ol>  |
| <b>5</b><br><b>(Nov 28)</b> | Data modeling <ol style="list-style-type: none"><li>1. Random variables, stochastic methods</li><li>2. Monte-Carlo simulations</li><li>3. Bootstrap for amateurs</li></ol>   |
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- 6** Applications  
**(Dec 5)**
1. Financial models in Excel developing, application examples
  2. DCF, WACC
  3. Option valuation models, VaR, portfolio valuation
  4. Operation management models
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- 7** Student project presentation (5 minutes per student).  
**(Dec 12)**
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### **Description of course methodology**

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Main book – Simon Benninga. Financial modeling (free in internet).  
Study material and problem sets will be published on Sunday before the lecture.  
In classes there will be discussing cases and Q&A session.  
Homework should be done till Sunday after the lecture.

### **Personal projects**

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November 6. Students should choose the project topic and approve the theme:

- By default - Kaggle dataset
- Other project/datasets possible only if I approve the topic.

December 12. Project presentation will be on.

### **Additional reading**

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[cpearson.com/Excel/Topic.aspx](http://cpearson.com/Excel/Topic.aspx) – first blog I read, deep into problem

<http://peltiertech.com/> – on design in Excel

[contextures.com/tiptech.html](http://contextures.com/tiptech.html)

<http://www.planetaexcel.ru/techniques/2/1790/>

<http://www.excel-vba.ru/chto-umeet-excel/arxivaciyaizvlechenie-iz-arxiva-cherez-vba/>

### **Academic integrity policy**

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Cheating, plagiarism, and any other violations of academic ethics at NES are not tolerated.