Санкт-Петербургский филиал федерального государственного автономного образовательного учреждения высшего образования "Национальный исследовательский университет "Высшая школа экономики"

Факультет Санкт-Петербургская школа экономики и менеджмента

Департамент Финансов

Рабочая программа дисциплины
Личные финансы и финансовая математика /Personal Finance and financial math

для майнора Personal and Behavioral Finances
уровень - бакалавриат

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Утверждена академическим руководителем майнора

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Personal Investment Methods

Instructor: Vasilisa Makarova,
Credit Value: 5

Course Outline

Main objective of the course of the course "Personal Finance and Financial Mathematics" is to prepare students for finance, financial analysis and planning, taking into account the impact of micro and macroeconomic factors, in providing a sufficient level of knowledge and skills that allows for conscious and effective decisions in various areas of personal management finance, such as savings, investment, real estate, insurance, tax and pension planning.

Target audience includes following three groups:
– future financiers, consultants and analysts;
– future academics interested in behavioral and classic theory of finance field;
– general audience that is interested in the complicated world of finance.

Assessment Methods

Key competences acquired in the course make a student able:

ULo 1 Able to learn and demonstrate skills in the field, other than the major field
ULo 5 Work with information: find, define and use the information from different sources which required for solving of research and professional problems (including the system approach)
ULo 8 Able to efficiently communicate based on the goals and communication situations

Structure and content

	Topic	**Face-to-face meetings**			**Home work**	**Totally**
		Lectures	**Seminars**	**Totally**		
1	**2**	**3**	**4**	**5**	**6**	**7**
1	Macro, microfactors that determine the financial environment	4	2	6	16	22
2	Financial information and financial assets	4	2	6	16	22
3	Time value of money, cash flow theory	4	2	6	14	20
4	Analysis of individual financial statements	4	2	6	14	20
5	Financial planning	6	4	10	14	24
6	Tax planning	6	2	8	14	22
7	Consumption strategies	4	2	6	14	20
8	Personal risk management	4	2	6	14	20
9	Housing Economy	4	2	6	14	20
		40	**20**	**60**	**130**	**190**

Assessment includes the final exam grade (50%), in-class participation (20%) and home assignments (30%).

The final exam consists of questions for each topic of the course and lasts 80 minutes. The maximal grade for the exam is 100 points.

The in-class participation covered the attendance and in-class activity. The maximal grade for the in-class participation is 20 points.

The home assignments can be completed both individually and in groups (up to 5 participants). The maximal grade for an assignment is 100 points.

Sample Final Exam

1. *Calculate the personal income tax, based on the rules adopted in your country of residence*
   Household of 4 people, has the following indicators of the family budget:
   1) father's income for the year in US dollars, received:
   - on job – 50 000;
   - on shares – 1000;
   - on state bonds – 500;
   - on rent – 5000;
   2) mother's income for the year in US dollars, received – 15 000;
   3) expenses incurred by the family for the year, in US dollars:
   - payment of utilities – 5000;
   - interest on mortgage – 500;
   - real estate insurance fee – 3000;
   - car insurance premium – 1500;
   - payment for voluntary medical insurance for all family members – 2 000;
   - school fees – 8000;
   - college fees – 15 000;
   - over-insurance health care costs – 500; (25 points)
2. Compare the future value in one year of $100,000 to be invested today at 10% under the following scenarios.
   (a) Annual compounding
   (b) Quarterly compounding
   (c) Continuous compounding (25 points)
3. Describe the problem resulting in a typical principle-agent relationship. How to mitigate this problem? What are the “incentive-compatibility” and “individual rationality” constraints in this context? / Describe the concept of specific assets. How it can be measured? (25 points)
4. What are the key problems in empirical testing of the personal finance? (25 points)

Sample Problem to discuss

What’s Your Risk Tolerance?
What are these hedge funds that I’ve heard about, and should I invest in them?
What if the fund manager in charge of my fund leaves?

Sample exercise

4. Example: Connie works as a salesperson. She earns 5% commission on the first $10,000 of sales, and 8% on any sales above $10,000 for the week. How much did Connie earn in commission in a week if her sales were $25,000?
5. Tom invests $2,000 in a bond, and at the end of one year its value is $2,100. How much must he invest in a second bond that yields 10% over the same period to have a total internal rate of return of 8% on this portfolio?
6. If Tom invests $2,000 in a bond with an annual rate of return of 4.5% and $4,000 in a second bond with the same maturity, then what rate of return is needed on the second bond to have a total internal rate of return of 8% on this portfolio?
7. A worker earns $1.12 for each program he sells. The programscost $8. What percent commission does the worker earn?
8. Corina works at a boutique and earns $9.75 per hour plus commission. Last month she worked 150 hours and had $5,000 in sales. Her gross pay was $1,712.50. What is her rate of commission

   If Amanda's bond has 10 years to maturity and she pays $11,487.75 for it, then what is the coupon rate?
9. Referring to Problem 6, find the duration and modified duration for both bonds.
10. Referring to Problems 6 and 7, find the duration and modified duration for the single portfolio consisting of both Wendy's bond and Amanda's bond.

Readings / Indicative Learning Resources

1. The Economics of Money, Banking and Financial Markets / Frederic S. Mishkin – Pearson Education; Global ed of 10th revised ed edition. 2012. – 520 c
2. Financial Economics (2nd Edition) /Zvi Bodie, Robert C Merton, David Cleeton - Pearson Learning Solutions; 2 edition, 2012. - 512 c.

Recommendations for students about organization of self-study

Self-study is organized in order to:

- Systemize theoretical knowledge received at lectures;
- Extending theoretical knowledge;
- Learn how to use legal, regulatory, referential information and professional literature;
- Development of cognitive and soft skills: creativity and self-sufficiency;
- Enhancing critical thinking and personal development skills;
- Development of research skills;
- Obtaining skills of efficient independent professional activities.

Self-study, which is not included into a course syllabus, but aimed at extending knowledge about the subject, is up to the student's own initiative. A teacher recommends relevant resources for self-study, defines relevant methods for self-study and demonstrates students' past experiences. Tasks for self-study and its content can vary depending on individual characteristics of a student. Self-study can be arranged individually or in groups both offline and online depending on the objectives, topics and difficulty degree. Assessment of self-study is made in the framework of teaching load for seminars or tests.

In order to show the outcomes of self-study it is recommended:

- Make a plan for 3-5 presentation which will include topic, how the self-study was organized, main conclusions and suggestions and its rationale and importance.
- Supply the presentation with illustrations. It should be defined by an actual task of the teacher.

Recommendations for essay

An essay is a written self-study on a topic offered by the teacher or by the student him/herself approved by teacher. The topic for essay includes development of skills for critical thinking and written argumentation of ideas. An essay should include clear statement of a research problem; include an analysis of the problem by using concepts and analytical tools within the subject that generalize the point of view of the author.

Essay structure:

1. *Introduction and formulation of a research question.*
2. *Body of the essay* and theoretical foundation of selected problem and argumentation of a research question.
3. *Conclusion* and argumentative summary about the research question and possibilities for further use or development.

Special conditions for organization of learning process for students with special needs

The following types of comprehension of learning information (including e-learning and distance learning) can be offered to students with disabilities (by their written request) in accordance with their individual psychophysical characteristics:

1) *for persons with vision disorders:* a printed text in enlarged font; an electronic document; audios (transferring of learning materials into the audio); an individual advising with an assistance of a sign language interpreter; individual assignments and advising.
2) *for persons with hearing disorders: a* printed text; an electronic document; video materials with subtitles; an individual advising with an assistance of a sign language interpreter; individual assignments and advising.
3) *for persons with muscle-skeleton disorders: a* printed text; an electronic document; audios; individual assignments and advising.