National Research University Higher School of Economics
Nizhny Novgorod

Faculty of Management

Course Syllabus

Marketing Metrics and CRM

Master's programme in Marketing

38.04.02 – Management

Prepared by:

Sergey V. Alexandrovskiy, Candidate of Sciences (PhD) in Economics and National Economy Management, Associate Professor

saleksandrovskiy@hse.ru

Denis A. Fomenkov, Candidate of Sciences (PhD) in Economics and National Economy Management, Associate Professor dfomenkov@hse.ru

Recommended by Academic Council of Master's Programme

«___» _____ 2017, protocol № _____

Approved «___»_____ 2017

Head of Master's programme, Sergey Alexandrovskiy _____

Nizhny Novgorod, 2017

1. About Course

The course introduces principles and methods of marketing analytics. Students learn how to understand business problems, set goals, formulate hypotheses, find and analyze data, make decisions based on analysis. Students understand how marketing metrics impact business decisions, and how senior management judge marketing efforts.

The syllabus is designed in accordance with:

1. The educational standard of National Research University Higher School of Economics for master's programmes in 38.04.02 "Management";
2. The curriculum of the master's programme "Marketing" approved in 2017.

2. Course Objectives

The course helps students learn how to make and evaluate data-driven marketing decisions.

3. Student Outcomes and Competencies

At the completion of the course requirements students

understand key marketing metrics, how to calculate metrics, how to collect and analyze data, how to make and evaluate data-driven marketing decisions.

can apply analytic software and methods to calculate metrics, collect primary and secondary data, evaluate data-driven marketing decisions.

get experience in calculation of metrics, data analysis, making and evaluating data-driven marketing decisions.

Competence	Id	Type	Description	Teaching methods	Verification methods
Student design and implement action plan to reach strategic goal of company.	ПК - 22	РБ / СД	Student knows key marketing metrics, how metrics impact business decisions. Student design data-based action plan	Lectures, Case Studies	Homework, In-class Assignments, Exam
Student collect and analyze data to make business decisions.	ПК-26	РБ / СД	Student collect primary and secondary data, apply software and methods to make analysis.	Lectures, Case Studies	Homework, In-class Assignments, Exam

4. Course Prerequisites

This course is for students without a background in marketing metrics who need to evaluate the impact of their marketing efforts.

Prerequisites:

- Marketing Strategy
- Marketing Research
- Microsoft Excel

5. Course Outline

Student get 5 ECTS credits

№	Theme	Total hours	In-class hours		Self-guided learning, hours
			Lectures	Seminars	
1	Introduction to Marketing Analytics	16	2	6	8
2	Marketing Analytics Toolkit	76	2	10	64
3	Forecasting	32	2	6	24
4	Visualization	28	2	2	24
	Total	152	8	24	120
		5 ECTS			

6. Types of Control

Control	Type	2nd year		Description
		1st module	2nd module	
Continuous assessment	Homework	7		Case study. Group assignment. Written report, verbal presentation and discussion.
Final	Exam		*	Written individual assignment.

7. Grading

Final grade = 60% * Cumulative + 40% * Exam

Cumulative = 70% * Attendance and Discussion + 30% * Homework

We recommend to round up final grades in arithmetical way.

Homework

The homework assignment ask students to apply and interpret relevant marketing metrics to typical marketing situations. Students work in teams. Teams brief a client, understand a problem, write and present a report. Teams upload reports to Google Drive folder.

Team gets a grade on a 10-point scale. Team gets 4 points if answers all questions, show calculations, and submit the report in Microsoft Word or PDF format. Team gets 2 points if calculations are correct or close to correct. Team gets 2 points if submit report by deadline. Team gets 2 points if provide comments for calculations: compare key metrics with industry or similar companies, along with research citings.

Students of same team get the same grade.

Exam

Student pass the test that includes multiple-choice or op-ed questions. Student gets a grade on a 10-point scale.

Grading Criteria:

Grade on 10 point scale	Grade on 5 point scale	Required competencies levels (low, basic or advanced)
1-3	Insufficient	Below satisfactory requirements
4-5	Sufficient	ПК-26 - low ПК-20 - low
6	Satisfactory	ПК-26 - basic ПК-20 - low or ПК-26 - low ПК-20 - basic
7	Good	ПК-26 - basic ПК-20 - basic
8-9	Very good	ПК-26 - basic ПК-20 - advanced

		or ПК-26 - advanced ПК-20 - basic
10	Excellent	ПК-26 - advanced ПК-20 - advanced

8. Topics and Readings

Theme 1. Introduction to Marketing Analytics

Topic	In-class hours	Self-guided learning, hours
Analytics Goals	2	
Key Marketing Metrics	4	
Customer Relationship Management (CRM) and Customer Lifetime Value	2	
Total	8	8

Students understand job requirements to marketing analyst.

Students understand business problem, set analytics goal, make decomposition of goal.

Students learn key financial and nonfinancial marketing metrics. Students learn about awareness, test-drive, churn rate, retention, net promoter score (NPS), customer satisfaction (CSI, CSAT), take rate, profit, return on investment (ROI), return on marketing investment (ROMI), net present value (NPV), internal rate of return (IRR), payback, customer lifetime value (CLV, CLTV, LTV), cost per click (CPC), cost per action (CPA), customer acquisition cost (CAC), transaction conversion rate (TCR), bounce rate, return on advertising (ROA). Students learn about tree of metrics. Students learn how to calculate metrics. Students apply spreadsheets to calculate metrics. Students learn how to formulate hypotheses for metrics and test hypotheses with basic statistical methods in spreadsheets and Rstudio.

Students learn about Customer Relationship Management (CRM) systems for retail, eCommerce, services.

List of assignments:

- Clarify analytic goal and build a report
- Calculate marketing metrics for specific tasks
- Explore cases on application of CRM systems in local companies

See Appendix for examples of assignments.

Reading

1. Carl Anderson, Creating a Data-Driven Organization: Practical Advice from the Trenches 1st Edition, O'Reilly Media; 1 edition (August 14, 2015)
2. Jeffery, M. Data-Driven Marketing: The 15 Metrics Everyone in Marketing Should Know. Wiley; 1 ed., 2010
3. Dimitri Maex, Paul B. Brown Sexy Little Numbers: How to Grow Your Business Using the Data You Already Have, Crown Business; 1st Edition edition (September 4, 2012)
4. Paul W. Farris, Phillip E. Pfeifer, David J. Reibstein Neil T. Bendle. Marketing Metrics : The Manager's Guide to Measuring Marketing Performance. Neil T. Bendle, 2015

Theme 2. Marketing Analytics Toolkit

Topic	In-class hours	Self-guided learning, hours
Databases and SQL	2	
Analytics in Spreadsheets	2	
Cohort Analysis, LTV, ROI, retention	2	
A/B Tests	2	
Factor Analysis: Exploratory and Confirmatory Factor Analysis	2	
RFM Analysis, Cluster Analysis	2	

Total	12	64

Students learn how to communicate with a CRM database by Structured Query Language (SQL). Students write SQL queries on Google BigQuery to analyze market size, customer base, revenue, average check, ROI, LTV.

Students learn how to evaluate advertising, design and service impact with cohort analysis. Students use data from SQL queries and pivot tables to calculate and forecast LTV and ROI of cohorts in spreadsheets.

Students apply spreadsheets to forecast categorical variables.

Students apply Rstudio to make RFM Analysis, Cluster Analysis.

Students learn about statistics and mathematical optimization for A/B tests.

List of assignments:

- Write SQL queries for specific tasks
- Build and analyze cohorts
- Forecast LTV and ROI
- Apply A/B test to optimize ad campaign
- Build dashboard to show key metrics
- Find clusters of clients
- Make RFM analysis and choose priority segments of customers

Reading

1. Stephan Sorger Marketing Analytics: Strategic Models and Metrics, CreateSpace Independent Publishing Platform; 1 edition (January 31, 2013)
2. V. Kumar, Denish Shah Handbook of Research on Customer Equity in Marketing, Edward Elgar Pub (March 29, 2015).
3. Malhotra, N. K. Marketing Research: An Applied Orientation. Prentice Hall, 6th ed., 2009
4. Wilson, W. Marketing Analytics: Data-Driven Techniques with Microsoft Excel, Wiley, 2014.
5. John W. Foreman Data Smart: Using Data Science to Transform Information into Insight, Wiley; 1 edition (November 4, 2013)

Theme 3. Forecasting

Topic	In-class hours	Self-guided learning, hours
Predictive Analytics, Regression Analysis: Multiple, Hierarchical, Logistic, Dummy Variables	4	
Comparing Means, Statistical Significance and p-value, ANOVA, Chi-square	4	
Total	8	24

Reading

1. Andrew McAfee, Erik Brynjolfsson Big Data: The Management Revolution // HBR, 2012.
2. Stephan Sorger Marketing Analytics: Strategic Models and Metrics, CreateSpace Independent Publishing Platform; 1 edition (January 31, 2013)
3. V. Kumar, Denish Shah Handbook of Research on Customer Equity in Marketing, Edward Elgar Pub (March 29, 2015).
4. Wilson, W. Marketing Analytics: Data-Driven Techniques with Microsoft Excel, Wiley, 2014.
5. John W. Foreman Data Smart: Using Data Science to Transform Information into Insight, Wiley; 1 edition (November 4, 2013)

Theme 4. Visualization

Topic	In-class hours	Self-guided learning, hours
How to visualize your data. Toolkit	2	
How to read graphs	2	
Total	4	24

Students learn basic principles of visualization and presentation. Students learn how to use software and web-services to visualize data in reports. Students learn how to choose a form of a graph. Students learn how to interpret graphs and spot lies in graphs. Students learn how to present reports.

Reading

1. Nathan Yau, Visualize This: The FlowingData Guide to Design, Visualization, and Statistics 1st Edition, Wiley; 1 edition (July 20, 2011)
2. Gene Zelazny, Say It With Charts: The Executive's Guide to Visual Communication 4th Edition, McGraw-Hill Education; 4 edition (March 15, 2001)
3. Edward R. Tufte, Envisioning Information, Graphics Press (January 1990)
4. Alexei Kapterev, Presentation Secrets Paperback, Wiley; 1 edition (September 20, 2011)

9 Recommendations for students

Students enjoy all benefits of the course when

- Attend all classes
- Participate in discussions
- Ask relevant questions during class
- Study the assigned material to prepare for class sessions
- Answer all questions in assignments
- Give comments to all answers
- Meet deadlines
- Bring laptops to class for hands-on case studies
- Act with honesty, integrity, and respect for others
- Use LMS system to track personal achievements, assigned materials and readings

10. Overview of Assignments

See appendixes for samples of homework and in-class assignments.

Sample of exam questions:

1. Decompose analytics goal provided on exam.
2. What is market sizing? Explain steps of market sizing.
3. Explain steps to build a SQL query for a specific task provided on exam.
4. Explain steps to forecast LTV and ROI in spreadsheets.
5. Explain steps to apply A/B test to optimize ad campaign.

6. What is RFM analysis? Explain steps to build RFM clusters.
7. What is Cohort analysis? Explain steps to build cohorts and apply Cohort analysis.
8. Explain steps to forecast metrics.
9. Choose relevant graphs for outputs provided on exam.
10. Look at a graph provided on Exam. Explain drawbacks. Explain steps to update a graph.

11. Readings

Books and journals:

1. Andrew McAfee, Erik Brynjolfsson Big Data: The Management Revolution // HBR, 2012.
2. Carl Anderson, Creating a Data-Driven Organization: Practical Advice from the Trenches 1st Edition, O'Reilly Media; 1 edition (August 14, 2015)
3. Dimitri Maex, Paul B. Brown Sexy Little Numbers: How to Grow Your Business Using the Data You Already Have, Crown Business; 1st Edition edition (September 4, 2012)
4. Jeffery, M. Data-Driven Marketing: The 15 Metrics Everyone in Marketing Should Know. Wiley; 1 ed., 2010
5. John W. Foreman Data Smart: Using Data Science to Transform Information into Insight, Wiley; 1 edition (November 4, 2013)
6. Malhotra, N. K. Marketing Research: An Applied Orientation. Prentice Hall, 6th ed., 2009
7. Paul W. Farris, Phillip E. Pfeifer, David J. Reibstein Neil T. Bendle. Marketing Metrics : The Manager's Guide to Measuring Marketing Performance. Neil T. Bendle, 2015
8. Stephan Sorger Marketing Analytics: Strategic Models and Metrics, CreateSpace Independent Publishing Platform; 1 edition (January 31, 2013)
9. V. Kumar, Denish Shah Handbook of Research on Customer Equity in Marketing, Edward Elgar Pub (March 29, 2015).
10. Wilson, W. Marketing Analytics: Data-Driven Techniques with Microsoft Excel, Wiley, 2014.

Selected web-sources:

- R for Mac https://cran.r-project.org/bin/macosx/ and Windows http://cran.rstudio.com/bin/windows/base/
- Rstudio https://www.rstudio.com/
- Google BigQuery. FAQ https://cloud.google.com/free/docs/frequently-asked-questions
- Google BigQuery. Quickstart https://cloud.google.com/bigquery/quickstart-web-ui

- Google BigQuery. Query Reference https://cloud.google.com/bigquery/docs/reference/legacy-sql
- Yandex Research https://yandex.ru/company/researches
- Think With Google https://www.thinkwithgoogle.com/intl/ru-ru/research/
- Cases from Google https://www.thinkwithgoogle.com/intl/ru-ru/case-studies/
- Get started with Sheets – Google Learning Center https://gsuite.google.com/learning-center/products/sheets/get-started/
- Online tutorial for Excel http://exceltable.com/

12. Tech Requirements

Students bring laptops to class to participate in hands-on case studies. Students use laptops, smartphones and other portable electronics for course-related activities.

Professors use screen, overhead, and speakers to show slides and videos.

Students use software:

- Spreadsheets: Excel or Google Sheets
- Word
- PowerPoint
- Google BigQuery
- Web-browser
- Google Drive
- R and RStudio

Prepared by Sergey V. Alexandrovsky
Denis A. Fomenkov

Appendix

Assignment 1 RFM

Classify clients from dataset in accordance with RFM model

Table1

Sample from dataset to understand structure

InvoiceNo	StockCode	Description	Quantity	InvoiceDate	UnitPrice	CustomerID
536365	85123A	WHITE HANGING HEART T-LIGHT HOLDER	6	01.12.2010 8:26	150,45	17850
536365	71053	WHITE METAL LANTERN	6	01.12.2010 8:26	200,01	17850
536365	84406B	CREAM CUPID HEARTS COAT HANGER	8	01.12.2010 8:26	162,25	17850
536365	84029G	KNITTED UNION FLAG HOT WATER BOTTLE	6	01.12.2010 8:26	200,01	17850
536365	84029E	RED WOOLLY HOTTIE WHITE HEART.	6	01.12.2010 8:26	200,01	17850
536365	22752	SET 7 BABUSHKA NESTING BOXES	2	01.12.2010 8:26	451,35	17850
536365	21730	GLASS STAR FROSTED T-LIGHT HOLDER	6	01.12.2010 8:26	250,75	17850
536366	22633	HAND WARMER UNION JACK	6	01.12.2010 8:28	109,15	17850
536366	22632	HAND WARMER RED POLKA DOT	6	01.12.2010 8:28	109,15	17850
536367	84879	ASSORTED COLOUR BIRD ORNAMENT	32	01.12.2010 8:34	99,71	13047
536367	22745	POPPY'S PLAYHOUSE BEDROOM	6	01.12.2010 8:34	123,9	13047

536367	22748	POPPY'S PLAYHOUSE KITCHEN	6	01.12.2010 8:34	123,9	13047
536367	22749	FELTCRAFT PRINCESS CHARLOTTE DOLL	8	01.12.2010 8:34	221,25	13047
536367	22310	IVORY KNITTED MUG COSY	6	01.12.2010 8:34	97,35	13047
536367	84969	BOX OF 6 ASSORTED COLOUR TEASPOONS	6	01.12.2010 8:34	250,75	13047

Table2

RFM cells

Recency (R)	Frequency (F)	Monetary Value (M)
Quartile 1 (R=1)	Quartile 1 (F=1)	Quartile 1 (M=1)
Quartile 2 (R=2)	Quartile 2 (F=2)	Quartile 2 (M=2)
Quartile 3 (R=3)	Quartile 3 (F=3)	Quartile 3 (M=3)
Quartile 4 (R=4)	Quartile 4 (F=4)	Quartile 4 (M=4)

Steps

1. Using R prepare data for analysis: convert date into appropriate format, make necessary aggregations
2. Write code in R to perform task

Example of code

```
R_table <- aggregate(ParsedDate ~ CustomerId, raw_data, FUN=max)
R_table$R <- as.numeric(NOW - R_table$ParsedDate)
F_table <- aggregate(OrderNumber ~ CustomerId, raw_data, FUN=length)
M_table <- aggregate(Value ~ CustomerId, raw_data, FUN=sum)
RFM_table <- merge(R_table,F_table,by.x="CustomerId", by.y="CustomerId")
RFM_table <- merge(RFM_table,M_table, by.x="CustomerId", by.y="CustomerId")
RFM_table$ParsedDate <- NULL
names(RFM_table) <- c("CustomerId", "R", "F", "M")
```

```
RFM_table$Rsegment <- findInterval(RFM_table$R, quantile(RFM_table$R, c(0.0, 0.25, 0.50, 0.75, 1.0)))
RFM_table$Fsegment <- findInterval(RFM_table$F, quantile(RFM_table$F, c(0.0, 0.25, 0.50, 0.75, 1.0)))
RFM_table$Msegment <- findInterval(RFM_table$M, quantile(RFM_table$M, c(0.0, 0.25, 0.50, 0.75, 1.0)))
```

Assignment 2 Clusters

Using table provided below draw kernel density and identify possible clusters

370	0	0	0	0	0	0	0
9	127	119	55	34	55	34	21
3	72	94	68	48	74	48	29
1	43	107	48	40	63	52	38
0	21	58	39	32	47	30	25
0	15	40	23	25	51	38	32
0	21	67	54	39	90	59	71
0	15	47	31	51	103	67	96

Assignment 3 Clusters

We asked respondents to state importance of real-estate characteristics as if they were choosing place to live right now. We collected information from 400 respondents. Now we'd like to see if there are clusters with similar requirements.

Table 3
Sample from dataset

space;rooms;land_parking;design;view

3;2;4;5;1

2;4;6;5;1

2;3;5;6;1

1;2;3;4;5

1;2;6;4;5

3;4;2;1;5

4;5;2;3;1

1;2;3;4;5

1;2;3;4;5

3;1;2;4;5

6;1;4;5;3

3;1;2;4;5

3;2;4;5;1

2;1;6;3;5

4;2;1;3;6

1;2;3;4;5

1;4;2;5;6

3;4;2;1;5

Steps

1. Using R import csv file.
2. Install package NbClust
3. With NbClust define number of clusters
4. With k-means algorithm define clusters
5. Profile clusters

Assignment 4 SQL

Part 1 Simple queries

Connect to Google BigQuery. Open public dataset on NY Taxi Stat. Apply SQL and answer questions:

1. Show all rides on January 1st 2015
2. Count number of rides
3. Show all rides on each date of 2015
4. Order results by date

5. Count total costs and average check for each date
6. Order results by average check
7. Round up results

Part 2 Join tables

Connect to Google BigQuery. Upload datasets to Google BigQuery. Apply SQL and answer questions:

1. Find first and last names, emails of 15 users who made the most orders.
2. What country did contribute more revenue? Indonesia or Sweden?
3. How many users didn't make any purchase?
4. How many orders didn't match any user?

Part 3

1. Count users with name Mary
2. How many orders did they make?
3. Which Mary did order the most?
4. Where does she live? When did she register on the website?
5. Show number of orders, revenue and average check for Mary's country for every year. Order results in chronological way.
6. * (additional question) Count users who made their first order on a next day after registration. Use command datediff().

Put queries and outcomes in google sheet and add it to Google Drive folder for class assignments. Put every answer on a new page. Name file after your last name.

Answer template:

Task: What country did contribute more revenue? Indonesia or Sweden? *Copy task from slides to show what data you extract from database.*
Query: *Add your query to show how you get the data*

```
-- example

SELECT
  users.country,
  sum(orders.order_sum) AS total_sum,
FROM
  [spring-display-156011:lesson_4.users] users
INNER JOIN
  [spring-display-156011:lesson_4.orders] orders
ON
  users.id = orders.user_id
WHERE
  users.country = 'Indonesia'
  OR users.country = 'Sweden'
GROUP BY
  users.country,
ORDER BY
  total_sum DESC
```

Outcome:

Add table with results

Row	users_country	total_sum		
1	Russia	868528		
2	Brazil	731078		

Assignment 5 Cohort Analysis

Part 1

Connect to Google BigQuery. Upload datasets to Google BigQuery. Apply SQL to build cohorts by month, age. Count LTV and ROI for all months for all cohorts. Download CSVs.

Part 1

Upload CSVs to Google Sheets. Build cohort tables by month and age. Show cumulative LTV and ROI. Make decision on investment based on analysis.

Put queries, outcomes and tables in Google Sheets and add it to Google Drive folder for class assignments. Put every answer on a new page. Name file after your last name. Add comments to the cohort table.

Answer template:

	0	1	2	3	4	5	6	7	8	9	10	11	Grand Total
1	29.82	22.53	18.1	11.88	5.82	5.99	2.99	1.77	1.21	0.61	0.6	0.56	101.88
2	30.23	22.37	17.95	12.08	5.97	5.97	2.93	1.79	1.16	0.6	0.6		101.65
3	30.06	22.41	17.98	11.96	5.98	6.01	2.99	1.79	1.22	0.57			100.97
4	30.08	22.41	17.96	11.95	6	6.06	3.02	1.8	1.17				100.45
5	30.1	22.73	17.83	11.94	5.99	5.96	3.04	1.8					99.39
6	29.88	22.39	18.06	12.01	5.99	5.97	3						97.3
7	30.01	22.51	17.89	12	5.99	6.04							94.44
8	29.9	22.55	18.08	12.06	6.07								88.66
9	30.03	22.53	18.01	11.92									82.49
10	30.03	22.5	17.94										70.47
11	30.01	22.45											52.46
12	29.96												29.96
Grand Total	360.11	247.38	179.8	107.8	47.81	42	17.97	8.95	4.76	1.78	1.2	0.56	1020.12

ROI cumulative

cohort_id \ age	0	1	2	3	4	5	6	7	8	9	10	11
1	29.82	52.35	70.45	82.33	88.15	94.14	97.13	98.9	100.11	100.72	101.32	101.88
2	30.23	52.6	70.55	82.63	88.6	94.57	97.5	99.29	100.45	101.05	101.65	

3	30.06	52.47	70.45	82.41	88.39	94.4	97.39	99.18	100.4	100.97
4	30.08	52.49	70.45	82.4	88.4	94.46	97.48	99.28	100.45	
5	30.1	52.83	70.66	82.6	88.59	94.55	97.59	99.39		
6	29.88	52.27	70.33	82.34	88.33	94.3	97.3			
7	30.01	52.52	70.41	82.41	88.4	94.44				
8	29.9	52.45	70.53	82.59	88.66					
9	30.03	52.56	70.57	82.49						
10	30.03	52.53	70.47							
11	30.01	52.46								
12	29.96									

Number of customers XXXX

Customer acquisition cost XX RUR.

Lifetime Value XX RUR.

Profit per customer X RUR.

Total Profit XXXX RUR.

Сейчас

Marketing investment XXXX RUR

Customer base XXXX

Total profit XXXX RUR.

Your decision: invest or not? Comments:

Assignment 6 Principal components and factor analysis

Marketing research agency gathered data about lifestyle values of 400 respondents. They supposed to use it along with other customers' characterics. They measured values with 7 questions. Later they found that it was quite inconvenient to use all 7 variables, so they decided to diminish its number by principal component analysis. Determine principal components in data.

Table 1

Sample from dataset

q3_1	q3_2	q3_3	q3_4	q3_5	q3_6	q3_7
5,00	5,00	1,00	5,00	5,00	4,00	3,00
1,00	1,00	1,00	5,00	5,00	4,00	4,00
1,00	1,00	1,00	5,00	5,00	4,00	4,00
5,00	5,00	2,00	5,00	5,00	5,00	3,00
3,00	3,00	3,00	5,00	4,00	3,00	4,00

q3_1 - Material values are very important to me, I prefer to buy expensive things (5 - completely agree; 1 - completely disagree).
q3_2 - Entertainment plays a very important role in my life. I love to spend money on myself and on travelling (5 - completely agree; 1 - completely disagree).
q3_3 - I find it very important to participate in solving problems of society (5 - completely agree; 1 - completely disagree).
q3_4 - Family values and home cosiness are very important for me (5 - completely agree; 1 - completely disagree).
q3_5 - Professional achievements and career are very important for me (5 - completely agree; 1 - completely disagree).
q3_6 - Healthy way of living, good shape of my body are very important for me (5 - completely agree; 1 - completely disagree).
q3_7 - To communicate with friends and to host guests are very important for me (5 - completely agree; 1 - completely disagree).

Steps

1. Import csv file into R
2. Install R package “psych”
3. Prepare the data.You can input either the raw data matrix or the correlation matrix to the principal() and fa() functions.
4. Select a factor model. You’ll also need to choose a specific factoring method.
5. Decide how many components to extract (draw scree plot).
6. Extract the components.
7. Rotate the components.

8. Interpret the results.
9. Compute component scores.