Course title: Data Analysis and Decision Making in Tourism and Hospitality

**Code:** 229071

**Instructor:** Prof. Yechezkel Israeli

**Credit hours:** 2

**Year:** 2; **Semester:** A

**Academic year**: 2021-22 (תשפ"ב)

**Course objectives:**

Efficient decisions in the tourism industry are based on information inferred through valid and clean data. Sources of data can be derived from official statistical reports or visitor surveys (from national to site level). This course is designed to provide students with the necessary tools for analyzing, interpreting and presenting data needed for tourism business decisions. A variety of statistical tools are examined that can be used to assist managers in the decision making process. The course combines teaching and seminars in the computer lab with group work on statistical packages.

**Intended learning outcomes:**

By the end of the course students will have the following abilities:

1. To identify relevant sources of data banks in various levels (through international to local).
2. To identify the appropriate statistical tools according the problem to be coped with.
3. To utilize data through appropriate statistical tools and spreadsheet software to achieve the most confident decision.
4. To create various scenarios of solutions, based on sensitivity analysis.

**Schedule of lessons:**

|  |  |  |  |
| --- | --- | --- | --- |
| **Lesson #** | **Topic** | **Details** | **Relevant reading assignments** |
| 1 | Introduction | Sources of data in the tourism industry (global as UNWTO, EUROSTAT, national and local levels); The relationship between data analysis and decision making; Examples of predicting results from small samples; Trade-off between risk level and accuracy; The role of statistical distributions and correlations in predicting manifestations, trends and forecasts for tourism purposes. | 3, chap.1  2, unit II, 5,6; |
| 2 | Comparison of two population means | Testing the difference of two population means: (1) Independent samples where variances are known, where variances are not known but equal, where variances are not known and not equal; (2) dependent samples; Implications for tourism; | 3, unit III, 10;  4, chap.14;  6;  10, chap. 11;  1; |
| 3 | Comparison of two population variances | The F distribution; Testing the ratio of two population variances; Comparison between two tourist demand fluctuations and seasonality. | 6;  10, chap. 11;  1; |
| 4, 5 | Analysis of Variance | ANOVA table for comparing means of more than two independent samples; Main measures and their relation to F distribution;  Multivariate analysis of Variance (MANOVA) for categorical dependent variable;  Application of ANOVA and MANOVA for tourist surveys. | 3, unit III, 11;  6;  10, chap. 14;  8;  1; |
| 6 | Post-Hoc analysis | Exploring the differences between categories, groups or clusters, as a result of ANOVA analysis. The use of Tukey’s method. | 9; |
| 7, 8 | Multiple linear Regression | Regression for any number of variables; Type of independent variables and dependent variable; The relationship between multiple regression and analysis of variance; Significance of coefficients; Tests on linearity; Multicollinearity and its importance on future Factor Analysis. Applications to tourism forecasting; | 3, unit IV, 13;  6;  7;  10, chap. 13;  1; |
| 9 | Advanced regression procedures | Application of stepwise regression and piecewise regression. The use of appropriate software. | 7; |
| 10 | Logistic regression | The characteristics of categorical data; A model for a qualitative dependent variable at two levels; Dummy variables; Two level (logit) and multi-level models. Implementation in tourism. The use of appropriate software. | 10, chap. 17 |
| 11 | Non-linearity | Testing linearity between two variables (Pearson coefficient); Plot analysis; Curve and surface fitting; Equation fitting; The use of appropriate software. Examples of non-linear associations in tourism and hospitality. | 5; |
| 12, 13 | Factor Analysis | The theory of factor analysis, as a method of identifying the minimum number of unobserved variables (“factors”) which describe variability among observed ones; The use of appropriate software. | 2;  6; |

**Grading scale:**

|  |  |
| --- | --- |
| **Assignment** | **Percentage of final grade** |
| Exercises | 20% |
| Report on analysis of global data | 80% |
| Attendance | 10% |
| **Total** | **100%** |

Note: Addition or reduction of points might be according to general impression of student’s diligence, attendance and participation in class.

**Main bibliography:**

1. Baggio, R., & Klobas, J. (2017). *Quantitative methods in tourism: A handbook*. Channel view publications.
2. Child, D. (1990). *Factor Analysis*. 2nd ed. London: Cassell
3. Cortinhas, C. & Black, K. (2012). *Statistics for business and economics*. N.J.: John Wiley & Sons.
4. Frankfort-Nachmias, C. & Leon-Guerrero, A. (2009). *Social statistics for a diverse society*. 5th ed. Calif.; London: Pine Forge.
5. Freud, R. (2006). *Regression Analysis*. Burlington: Elsevier Science.
6. Gaur, A., & Gaur, S. (2006). *Statistical Methods for Practice Research: A Guide to Data Analysis Using SPSS*. Sage.
7. Hoffman, J. & Shafer, K. (2015). *Linear Regression Analysis: Assumptions and Applications*. Washington DC.: NASW Press.
8. Huberty, C. & Olejnik, S. (2006). *Applied MANOVA and Discriminant Analysis*. N.J.: Wiley Interscience.
9. Sefarin, R. & Gordon, N. (1995). Learning from Experience: *Post Hoc Assessment and Environmental Planning, Management and Decision-Making*. Ontario: University of Waterloo.
10. Sincich, T. (1996). *Business Statistics by Example*. 5th ed. N.J.: Prentice-Hall.

**Secondary Bibliography:**

1. Barker, H. & Barker, B. (1984). *Multivariate Analysis of the Variance (MANOVA): A Practical Guide to its Use in Scientific Decision-Making*. Alabama: University of Alabama Press.
2. Dierckx, P. (1993). *Curve and Surface Fitting with Splines*. Oxford: Clarendon.
3. Eye, A. & Schuster, C. (1998). *Regression Analysis for Social Sciences*. San-Diego: Academic Press.
4. Levin, R., & Rubin, D. (1998). *Statistics for Management*. N.J.: Prentice-Hall.
5. Tukey, J. (1977). *Exploratory Data Analysis*. Massachusetts: Addison Wesley.
6. Veal, A. J. (2017). *Research methods for leisure and tourism*. Pearson