



**“CAROL DAVILA” UNIVERSITY
OF MEDICINE AND PHARMACY BUCHAREST**
Faculty of Dentistry
Dental Medicine in English



DISCIPLINE GRID

1. Programme:

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| 1.1. | CAROL DAVILA UNIVERSITY OF MEDICINE AND PHARMACY BUCHAREST |
| 1.2. | FACULTY OF DENTISTRY / 2nd DEPARTMENT |
| 1.3. | DIVISION: Scientific research methodology-ergonomics |
| 1.4. | STUDY DOMAIN: Health, sectoral regulated within European Union |
| 1.5. | STUDY LEVEL: LICENCE |
| 1.6. | STUDY PROGRAMME: DENTAL MEDICINE IN ENGLISH |

2. Discipline:

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|--------------------|--|------------------|-----------|--------------------|-------------|-------------------------|--------------|
| 2.1. | DISCIPLINE NAME: Scientific Research Methodology | | | | | | |
| 2.2. | LOCATION: Str Eforie nr 4-6, Sector 5, Bucuresti | | | | | | |
| 2.3. | Lectures tenure: Cristina Teodora PREOTEASA- Assoc.Prof. | | | | | | |
| 2.4. | Practical classes tenure: Anca Axante – Teaching assistant; Cristina Pirvu -Teaching assistant | | | | | | |
| 2.5. Study year | II | 2.6. Semester | IV | 2.7. Evaluation | Exam | 2.8. Type of discipline | CD/CD |

3. Estimated total time (hours/semester)

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|--------------------------------------|-----------|--------------|---------------------|--------------------------------|
| No. hours/week | 4 | out of which | Lectures: 2 | Laboratory session: 2 |
| Total hours out of learning schedule | 56 | out of which | Lectures: 28 | Laboratory sessions: 28 |

| Time distribution | hours |
|---|------------|
| Textbook study, lecture support, bibliography and notes | 15 |
| Supplementary documentation activity in the library, on online platforms | 10 |
| Practical activity support material, homework, portfolio and essays | 5 |
| Tutorial activity | 7 |
| Examinations | 4 |
| Other activities | 3 |
| Total hours of individual study | 44 |
| Total hours per semester | 100 |
| Credits | 4 |

4. Preconditions

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| 4.1. curriculum | Medical informatics and biostatistics |
| 4.2. proficiencies | Basic computer operating skills |

5. Conditions

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| 5.1. for lecture activity | Minimum 70 seats conference hall, laptop, video projector, internet and scientific database access |
| 5.2. for laboratory activity | Seminar classroom with desks and chairs, white board, laptop, video projector, internet connection, scientific database access, statistics software access. Dental offices equipped with necessary materials and instruments for various research applications. |

6. Accumulated skills

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| 6.1. Proficiencies <i>(knowledge and abilities)</i> | <p>I. Knowledge (cognitive dimension)</p> <ul style="list-style-type: none"> - knowing specific terminology and aspects of scientific research methodology in the medical field in general, and in the dental medical field in particular - understanding the principles for designing and accomplishing the scientific research activities in the dental medical field - respecting research and publication ethics requirements <p>II. Abilities (functional dimension)</p> <ul style="list-style-type: none"> - developing critical appraisal skills while evaluating articles - developing abilities and competences necessary when doing background research, while using diverse information sources (e.g., books, original research articles, systematic reviews, scientific presentations) |
| 6.2. Transversal skills <i>(role, professional and personal development)</i> | <p>III. Role skills</p> <ul style="list-style-type: none"> - the ability to increase their knowledge in their scientific field - skills of critical appraisal of scientific literature - being able to use information and communication technology - proving preoccupation for professional development <p>IV. Professional and personal development skills</p> <ul style="list-style-type: none"> - being open to continuous education per life - proving the ability to search and use scientific information, as the basis of lifelong learning - proving interest for participation in scientific activities |

7. Objectives (based on the grid of acquired specific skills)

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| 7.1. General Objective | - to know how scientific research is conducted and presented in the medical field |
| 7.2. Specific Objectives | <ul style="list-style-type: none"> - to know how to do a proper literature research using scientific databases - to know how to formulate research aim, objectives and hypothesis - to know the main types of clinical study designs, their advantages and disadvantages. - to know the general elements that contribute to the validity while using different sampling methods - to understand the variable selection method and data registering - to understand statistical analysis - to know the format used in scientific articles for communicating research results - to know how to critically appraise clinical researches |

8. Content

| 8.1. Lectures | No. hrs/topic | Teaching method | Obs. |
|---|---------------|---|------|
| 1. Scientific research- definition and general characteristics | 2 | Lecture, interactive presentation, power point video presentation | |
| 2. Different research types used in the medical field. | 2 | | |
| 3. The research protocol | 2 | | |
| 4. Literature research and its importance in research. Referencing styles (author-date systems; Vancouver system). | 2 | | |
| 5. Study aim, objective and/or hypothesis. Clinical study classification | 2 | | |
| 6. Case study. Case series. Surveys and cross-sectional studies. | 2 | | |
| 7. Case-control studies. | 2 | | |
| 8. Cohort studies. | 2 | | |
| 9. Randomized controlled trials. | 2 | | |
| 10. Participants – sources, sampling | 2 | | |
| 11. Study variables and data collection methods. | 2 | | |
| 12. Statistical analysis. Factors important in choosing statistical analysis method. Main statistical analysis directions. Statistical analysis results presentation (text, tables and figures/graphs). | 2 | | |
| 13. IMRAD format for presenting researches. | 2 | | |
| 14. Evidence based medicine. | 2 | | |

| 8.2 Laboratory Sessions | No. hrs/topic | Teaching method | Obs. |
|--|---------------|--|------|
| 1. Literature research in medical sciences. Usage of electronic scientific databases. | 2 | Practical and theoretical applications using conventional and digital frameworks, working individually or in micro groups, case studies, debates | |
| 2. Exercises of literature research on specific medical themes in the context of conducting research, with referencing exercises in author-date and Vancouver systems. | | | |
| 3. Formulating research problem (aim, hypothesis). PICO/PECO format. Theme framing of the research problem (e.g., etiology, therapy). Study types (descriptive vs analytical, observational vs experimental, transversal vs longitudinal). | 2 | | |
| 4. Most frequently used study designs in medical research, with example of their use (e.g., etiology or therapy hypothesis) | 2 | | |
| 5. In depth understanding of the case report, exemplified using scientific articles. | 2 | | |
| 6. In depth understanding of the cross-sectional and case-control study, exemplified using scientific articles. | 2 | | |
| 7. In depth understanding of the cohort study, exemplified using scientific articles | 2 | | |
| 8. In depth understanding of the randomized controlled trial, exemplified using scientific articles. | 2 | | |
| 9. Random sampling- exercises of use of random number table, systematic sampling, stratified sampling, cluster sampling. Case study. | 2 | | |

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| 10. Exercises of variable classification and registration on different scales of measurement. The questionnaire as a data collection tool- building up exercises | 2 | | |
| 11. Statistical analysis exercises – aims and methods of analysis in regard to variable type and study aim, | 2 | | |
| 12. Exercises of research results presentation – understanding and constructing graphs (e.g., histograms, bar graphs, scatterplot). | 2 | | |
| 13. Exercises of presentation of research results using the IMRAD format. Case study using STROBE/CONSORT reporting guidelines | 2 | | |
| 14. Identifying and using different referencing styles. Citation exercises for books and articles. | 2 | | |
| 15. Critical scientific article analysis exercise, in the context of evidence based decision-making. | 2 | | |

8.3. Bibliography for lectures and laboratory/practical sessions

1. Lectures and laboratory session notes
2. Preoteasa CT. Redactarea lucrarilor stiintifice medicale. Bucuresti: Editura Universitara. 2017.
3. Preoteasa CT. Studiul de cohortă. București: Editura Cermaprint. 4. Peacock JL. 2016.
4. Peacock PJ. Oxford Handbook of Medical Statistics. Oxford: Oxford University Press. 2013.
5. Preoteasa CT, Buzea MC, Imre M, Ranga RC, Preoteasa E. Reporting ethics approval and informed consent of in vivo researches in dental journals. Rom J Leg Med; 2018;26(3): 323-328.
6. Popov L. Contribuția bibliotecii privind utilizarea instrumentelor bibliometrice în procesul de cercetare. Colecția Bibliotecii Tehnico-științifice UTM. 2019. Accesat la: <http://repository.utm.md/handle/5014/1668>.
7. Chiappelli F. Evidence-Based Dentistry: Two Decades and Beyond. J Evid Based Dent Pract. 2019;19(1):7-16. doi: 10.1016/j.jebdp.2018.05.001.
8. Kay E. Why evidence based dentistry? Evid Based Dent. 2023;24(1):1. doi: 10.1038/s41432-023-00872-w.
9. Goldstein GR. Evidence-Based Dentistry: Causation. J Prosthodont. 2021;30(9):737-741. doi: 10.1111/jopr.13431.
10. Weyant RJ. Evidence-Based Dentistry: The Foundation for Modern Dental Practice. Dent Clin North Am. 2019;63(1):ix-x. doi: 10.1016/j.cden.2018.09.001.

9. Corroborating the contents of the discipline with the expectations of epistemic community representatives, professional associations and employers in the fields representative for the program

In order to draw up the content, to choose the teaching/learning method, the titular members attended national and international congresses where they had the opportunity to exchange experience with other specialists in the domain, titular in other universities. Identification of the needs and expectations of the employers in the field has been attempted, together with coordinating the programme with others similar, developed in other higher education institutions.

Evaluation

| 10.1 Evaluation | | | |
|--|---|--|-----------------------------|
| Activity type | Evaluation Criteria | Methods of evaluation | % out of final grade |
| Lecture | <p>A. Knowledge for mark 5: Knowledge of the basic notions of conducting and presenting medical research.</p> <p>B. Additional knowledge for mark 10 In-depth knowledge of conducting and presenting medical research.</p> | <p>Exam (written exam; bibliography indicated for lectures and laboratory/practical sessions)</p> | 70% |
| Laboratory Sessions | <p>A. Knowledge for mark 5: The ability to do a literature research using electronic scientific databases.</p> <p>B. Additional knowledge for mark 10 The ability to do a critical appraisal of an article reporting a clinical research.</p> | <p>Practical assessment (presentation and critical appraisal of an original research article)</p> | 30% |
| Minimum performance standards | | | |
| Knowing basic notions of the scientific research in the medical field. | | | |

Date:
20.09.2023

Chair of Scientific research methodology and Ergonomics Division,
Cristina Teodora PREOTEASA, Assoc.Prof.

Date of the approval in
Department Board:

Department director,
Alexandru Bucur, Prof.