

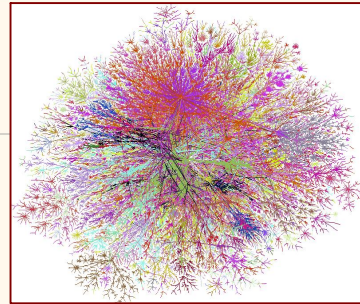
MEDICINSKA INFORMATIKA

Medicinska informatika
akad. god. 2008./09.,
završno predavanje



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Povezivanje...

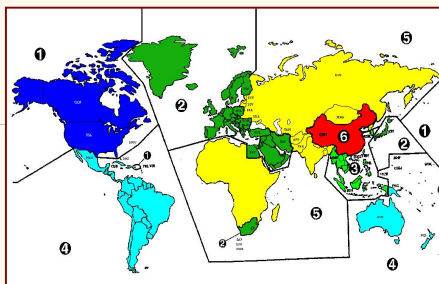


<http://www.cs.bell-labs.com/who/ches/map/>



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...i razdvajanje ☹



<http://www.unik.no/~robert/hifi/dvd/world.html>

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Globalizacija

Oregon Health & Science University
2003 IMIA Working Group on
Education meeting, April 23-25, 2003
Portland, USA



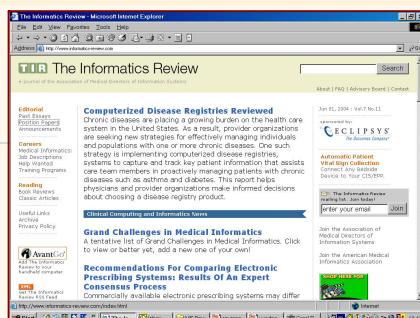
"Teach Globally, Learn Locally: Innovations in
Health and Biomedical Informatics Education
in the 21st Century"

The goals ... biomedical informatics education... planning for
the development of the IMIA "virtual university" that will
enable...



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E-časopisi



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E. Coiera, 1998. (TIR)

The computer, the telephone, the Web, video – these, and all that is still to come, are unquestionably powerful tools. **Used badly**, they waste time and money, and dehumanise our interactions with each other. **Used well**, guided by a clear understanding of basic informatics principles, they are neither to be feared, loved nor loathed. **They are simply to be used.**

In the next century, the study of informatics will become as fundamental to the practice of medicine as anatomy has been to the last.

<http://www.informatics-review.com/thoughts/skills.html#Ten essential clinical informatics skills>



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Obrazovanje u digitalnoj znanosti (u medicinskim strukama)

- Kako rabiti digitalnu znanost?
(VJEŠTINE)
- Što jest digitalna znanost?
(ZNAJANJE)

nastavnik
predavač



voditelj
koordinator



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10 vještina (E. Coiera)

Clinicians should be able to:

- Understand the dynamic and uncertain nature of medical knowledge and know how to keep personal knowledge and skills up-to-date
- Search for and assess knowledge according to the statistical basis of scientific evidence
- Understand some of the logical and statistical models of the diagnostic process
- Interpret uncertain clinical data and deal with artefact and error
- Analyse and structure clinical decisions in terms of risks and benefits
- Adapt and apply clinical knowledge to the individual circumstances of patients
- Access, assess, select and apply a treatment guideline; adapt it to local circumstances; and communicate and record variations in treatment plan and outcome
- Structure and record clinical data in a form appropriate for the immediate clinical task, for communication with colleagues, or for epidemiological purposes
- Select and utilize the most appropriate communication method for a given task (eg. face-to-face conversation, telephone, e-mail, video, voice-mail, letter)
- Structure and communicate messages in a manner most suited to the recipient, task and chosen communication medium.



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E-udžbenici, ~~\$~~

BIOCHEMISTRY
THIRD EDITION
Jeremy M. Berg, John L. Tymoczko, Lubert Stryer

Short Contents / Full Contents

Other books at NCBI

25. Nucleotide Biosynthesis

An ample supply of nucleotides is essential for many life processes. First, nucleotides are the activated precursors of nucleic acids. As such, they are necessary for the replication of the genome and the transcription of the genetic information into RNA. Second, an adenine nucleotide, ATP, is the universal currency of energy. A guanine nucleotide, GTP, also serves as an energy source for a more select group of biological processes. Third, nucleotide derivatives such as UDP-glucose participate in biosynthetic processes such as the formation of glycogen. Fourth, nucleotides are essential components of signal transduction pathways. Cyclic nucleotides such as cyclic AMP and cyclic GMP are second messengers that transmit signals both within and between cells. ATP acts as the donor of phosphoryl groups transferred by protein kinases.

In this chapter, we continue along the path begun in Chapter 24, which described the incorporation of nitrogen into amino acids from inorganic sources such as nitrogen gas. The amino acids glycine and aspartate are the scaffolds on which the ring systems present in nucleotides are assembled. Furthermore, aspartate and the side chain of glutamine serve as sources of NH₂ groups in the formation of nucleotides.



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E-udžbenici, \$

Harrison's Online

Harrison's Principles of Internal Medicine

UPDATES

Full Review (Oct 1, 2003)

CLINICAL CENTER

Resources

Emergency Medicine Photo Gallery

TABLE OF CONTENTS

LIST OF CONTRIBUTORS

PREFACE

PARTS

1. Introduction to Clinical Medicine

2. Cardiac Pathophysiology and Presentation of Diseases

3. Genetics and Disease

4. Clinical Pharmacology

5. Nutrition

6. Oncology and Hematology

7. Infectious Diseases

8. Disorders of the Cardiovascular System

9. Disorders of the Respiratory System

10. Disorders of the Kidney and Urinary Tract

11. Disorders of the Gastrointestinal System

12. Disorders of the Immune System, Connective Tissue, and Joints

13. Reproductive and Endocrinology

<http://www.harrisonsonline.com/>



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Izravno učenje s interneta

DIAGNOSTICIMAGING.com

RADIOLOGY IS GOING PLACES LET US TAKE YOU THERE FIRST

HOME

REGISTER

FORGET YOUR PASSWORD?

CONTACT US

EDUCATIONAL OBJECTIVES:

Upon completion of this activity, participants should be able to:

- Compare the difference between screen-film and digital mammography.
- Summarize the process by which digital mammograms are formed and displayed.
- Discuss the difference between hard-copy (film) and soft-copy (computer) displays of digital mammograms.

<http://www.diagnosticimaging.com/cme/articles/019.pdf>



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FIGURE 6. Contrast setting. A Change of contrast settings shows improved conspicuity of a benign fibroadenoma. B: High-contrast setting plus magnification shows improved definition of a benign fibroadenoma.

References

1. Hain AJ, Vail MJ, Smith BA, et al. Radiologic clinical of North American breast imaging. Philadelphia, PA: Saunders, 2000;36:4, 871-888.
2. Hendrick RE, Rosen BA. Operating techniques in screen-film mammography. In: Hendrick RE, Rosen BA, eds. Radiologic clinical of North American breast imaging. Philadelphia, PA: Saunders, 2000;36:4, 701-718.
3. Hendrick RE, Rosen BA. Operating techniques in full-field digital mammography. In: Hendrick RE, Rosen BA, eds. Radiologic clinical of North American breast imaging. Philadelphia, PA: Saunders, 2000;36:4, 889-904.
4. Rosen BA, Hendrick RE, Carter GA. Performance comparison of full-field digital mammography to screen-film mammography in a clinical setting. Medical Physics, 2002;29:830-838.
5. Hendrick RE, Rosen BA. Full-field digital mammography quality control manual. Chicago: Plurimetrics Publishing, 2001.
6. GE Medical Systems. Senographe 2000D Quality Assurance Protocol manual 227-500-001 4th ed Nov 22, 2000.
7. Lewis DR, Hendrick RE, Pritchard C, et al. Comparison of full-field digital mammography to screen-film mammography for cancer detection: results of a large-scale randomized trial. Radiology, 2001;218:873-880.
8. Lewis DR, Hendrick RE, Pritchard C, et al. Clinical comparison of full-field digital mammography to screen-film mammography for cancer detection: results of a large-scale randomized trial. Radiology, 2001;218:873-880.

...s testom znanja



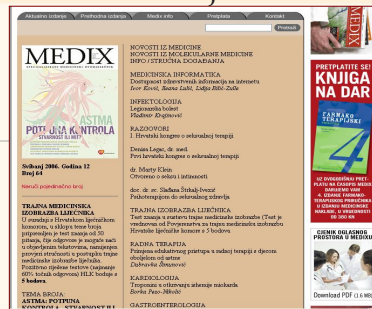
<http://www.mhsource.com/diagnostic/>



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... i u Hrvatskoj



<http://medix.com.hr>



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Izravno (on-line)...



<http://bmj.com/cgi/content/full/323/7304/75>



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<http://www.riskscore.org.uk/>



E-tromboza!

- **e-Thrombosis, a new threat for the 21st century**
- The risk of developing life-threatening blood clots from sitting for long periods at a computer was revealed today in a case report from New Zealand. **A young man who spent up to 18 hours a day sitting at his computer nearly died** after developing a massive blood clot that formed in his leg veins, broke off and travelled to his lungs (pulmonary embolism).

TIR, Vol. 6 No. 7



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Studentski seminar

- Zdravstveni informacijski sustavi
- Računalne simulacije i modeli u medicini
- Računalna potpora u medicinskom odlučivanju
- Telemedicina
- Medicinske slike
- Biosignali



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Studentski seminar

- prikazi na računalu:
 - količina sadržaja (vrijeme na raspolaganju)
 - **izradba "na brzinu"** ☹
 - **plagiranje** ☹ ☹ ☹
 - preslika izvornog teksta – loše!
 - važno znati i razumijeti sadržaj, poznavati **sve** izraze, kratice i tumačenja
 - jako bitno: hrvatski književni jezik! ☺
 - šarenilo, animacije – nepotrebno!



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Stud. seminar – pismenost

...slijedi da će se V. sastanak (*Journal Club*) Katedre za informatiku održati u četvrtak, 13. lipnja 04. u 19 sati u informatičkoj učionici. Obradivat će se poglavlja prema sljedećem rasporedu: Gordana B. – 10. poglavlje, Lidija B.Z. – 11. poglavlje i Mladen P. – 12. poglavlje. Izvor podataka: "Uvod u znanstveni rad u medicini", Med. naklada, III. izd. (žuto), 2004. god. Podrazumijeva se da svi učesnici pomno prouče sva navedena poglavlja i aktivno se uključe u raspravu.



Medicinski fakultet Sveučilišta u Rijeci Katedra za medicinsku informatiku

Lidija Bilić - Zulle



Stud. seminar – pismenost

...slijedi da će se IV. sastanak (*Journal Club*) Katedre za informatiku održati u četvrtak, 16. lipnja 05., u 19 sati u informatičkoj učionici. Obradivat će se poglavlja prema sljedećem rasporedu: Gordana B. – 10. poglavlje, Lidija B.Z. – 11. poglavlje i Mladen P. – 12. poglavlje. Izvor podataka: "Uvod u znanstveni rad u medicini", Med. naklada, III. izd. (žuto), 2004. god. Podrazumijeva se da svi učesnici pomno prouče sva navedena poglavlja i aktivno se uključe u raspravu.



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Lidija Bilić-Zulle



Studentski seminari

- početak
 - Pozdraviti i predstaviti se
 - "ja, nažalost, nisam..."
 - "bit ću kratak..."
- završetak, zadnja rečenica, zaključak, pitanje...
 - "i to je to"
- zanimanje za to što se radi
- timski rad



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Studentski seminari, izlaganja

- tekst - tijekom izlaganja nisu se okretali prema zaslonu već su bili okrenuti prema svojim kolegama i trudili se s njima uspostaviti kontakt
- neki su istu temu obradili na drukčiji i zanimljiviji način, pronalazili primjere iz prakse i razmijenili osobna iskustva, te tako učinili prezentaciju i raspravu kvalitetnijom
- neka su izlaganja trajala predugo
- neki su studenti izlagali previše materijala, dok su drugi izlagali premalo, te nisu došli do izražaja



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Studentski seminari, prezentacija

- slajdovi nisu bili prenatrpani tekстом
- najvažniji pojmovi bili su istaknuti, ostatak informacija dobiven izlaganjem
- nekoliko se studenata potrudilo ubaciti prigodne slike (simulacije)
- većina je imala prezentacije s jasnom podlogom i poželjnim fontovima (Arial i Times New Roman)
- neki su slajdovi bili prenatrpani tekстом
- seminar "Medicinske slike! nije sadržavao slike"



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Studentski seminari, rasprava

- gotovo svaka tema pobudila je zanimanje studenata, a nakon nekih tema razvila se i kvalitetna rasprava
- najviše pitanja pobuđuje njihova buduća uloga na poslu te njihove zadaće
- najviše je zanimanja pobudila tema "Računalne simulacije i modeli u medicini"
- studente treba podučiti kvalitetnom raspravljanju jer svi govore u jedan glas zbog želje za iznošenjem svojih ideja



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Ispit: gradivo

- vježbe i seminari
- Đuro Deželić
Medicinska informatika
HDMI, Zagreb, 1997.
- Mladen Petrovečki i sur.
Dopunski tekstovi
mrežne stranice Katedre



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Dopunsko gradivo

- Degoulet P, Fieschi M.
Introduction to Clinical Informatics
Springer, 1997.
- Van Bommel JH, Musen MA.
Handbook of Medical Informatics
Springer, 1997.
http://www.mieur.nl/mihandbook/r_3_2/handbook/home.htm



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Ispitna razdoblja

- mrežne stranice
- pismeni ispit: 45 minuta
- rezultati: 30 minuta nakon ispita
- usmeni ispit:
 - po želji studenta
 - odmah po objavljivanju rezultata
- upis ocjene: odmah nakon objavljivanja rezultata

**Voditi računa o prijavljivanju i odjavljivanju ispita!
Studis!**



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Medicinska informatika

<http://mi.medri.hr/>

mvedrana@medri.hr

Studenti se primaju **svakim danom** od 12-14 sati
Konzultacije **utorkom i četvrtkom** 14-16 sati



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Ispit

- pismeni:
 - test, 22 pitanja, 45 min
 - primjer testa na mrežnim stranicama
- pribrajanje plus/minus bodova stečenih na nastavi
- usmeni:
 - 5 pitanja
 - objavljena na mrežnim stranicama

Bodova	Ocjena
0 - 11	nedovoljan
12 - 13	dovoljan
14 - 16	dobar
17 - 19	vrlo dobar
20 -	izvrstan



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