# Information literacy

A modular approach for the masterprograms of DMF
Concept for Int. Master in Neuroscience

24.05.2010
Ingrid .I. Riphagen (ingrid.i.riphagen@ntnu.no)
Menno P. Witter (menno.witter@ntnu.no)

**Introduction**
This proposal is conceived by Ingrid I. Riphagen, advisor medical information at AKF, and Menno P. Witter, coordinator for the International Master of Neurosciences, INM and KI/CBM, after initial consultation with coordinators of the other masterprograms at DMF and vice-dean Svanhild Schønberg.

In his proposal we opt to dissect the process of scientific research and accountancy in the format of reports and publications into different components, more or less following the approach chosen in VIKO, the web-based introductory instruction of the library http://www.ntnu.no/viko/en/

Aim is to develop a sequence of active training moments for students embedded within the obligatory courses of the various master programs of DMF. The material is structured such that students and lecturers can work with it, not necessarily needing external help from information specialists, librarians and such, during the course.

**Outcome:**
After the obligatory courses students are able to:
- ✓ define a research topic
- ✓ find relevant information on that topic
  - o different information sources
  - o quality assessment of sources
  - o how to search in databases
  - o consequences of the chosen search strategy
- ✓ summarize relevant information
- ✓ formulate an experimental research question for their master thesis
- ✓ account for the selection process of information used in their master thesis
- ✓ choose a format and publishing medium that suits their aims and obtained data

**Note**: all students registered for a particular course (NEVR 3001-3004) need to write an essay but only the master of Neuroscience students have to follow this modular element since they have to take all four courses.

**Module 1: Defining a topic and using elementary concepts on information resources & retrieval**

As part of the first course we will have two practical sessions, the first on how to define a topic for a paper[1] and the second on elementary knowledge about information tools[2] relevant for the aim of this module. In addition there will be an oral presentation and evaluation session.

---

[1] A paper is defined as a written text describing a particular item in research according to a fixed format in which a problem is introduced, data are collected in a well described manner and the data are interpreted taking already available scientific information into account.
[2] Information tools are defined as all possible ways to obtain information or sources that contain information, including information on publications, data-repositories, search engines etc.

The **outcome** is an essay of minimal 6 and maximal 10 pages, based on *books, book chapters or review papers* that deal with molecular or cellular neuroscience. It has to be based on at least 6 publications, maximal 10. All preparatory activities and practicals will bo done in groups of students and topics will be preselected to avoid too many permutations in the essays that are handed in. Each student writes his/her own essay. Essays/students are evaluated on the following criteria:

- arguments for selection of publications
- capability to synthesize data from several sources into a coherent scientific written presentation
- presentation of the paper to the group of students

Evaluation is pass/fail.
Students will receive feedback on the evaluation criteria as well as on use of English, style and clarity of writing.


## Module 2: Advanced level of information retrieval, strategies and evaluation criteria

This module will be part of NEVR3002 and will comprise two practical sessions and an oral presentation/evaluation session.
In this first practical session the focus will be on using and selecting appropriate tools efficiently to find relevant publications. In the next practical session we will focus on additional methods to acquire literature and elementary rules on how to cite.

The **outcome** is an essay of minimal 6 pages and maximal 10 pages, based on *primary publications only* (max 6 papers/35 pages of reading material; no secondary etc sources). The topic is related to that of course NEVR3002, i.e. systems in the brain. The essay will be written as a systematic review, thus including a detailed description of the search strategy, final selection process and outcome as part of the Methods section. A citation format will be provided.  Each student writes his/her own essay.
Essays/students are evaluated on the following criteria:

- introduction of the question/problem
- search strategy/protocol
- arguments for selection of publications
- capability to synthesize data from several experimental sources into a coherent scientific written presentation
- presentation of the paper to the group of students

Evaluation is pass/fail.
Students will receive feedback on the evaluation criteria as well as on use of English, style and clarity of writing.


## Module 3: Sources of information: which and when to use

In this module, which will be part of NEVR3003, the aim is sufficient literacy as to assure that information relevant to a certain topic will be retrieved and evaluated as efficiently as possible, i.e design a search strategy which is as restricted as possible to

avoid retrieving too many non-relevant papers and at the same time not excluding relevant papers. The third module will comprise two practical sessions and an oral presentation/evaluation session.

In the first of the two practical sessions a number of information tools will be introduced, and their specific usage and contents will be illustrated, as well as their limitations (i.e. why is it not smart to search for the contact information of an author in for example the Allen Brain Atlas. In the second practical session ways to describe/report on information research will be studied (guidelines i.e. PRISMA, examples, exercises).

The **outcome** of this module is the required paper for the course (min 6 - max 12 pages), i.e related to systems neuroscience and cognition, which needs to *include a detailed description of the search strategy in at least three different sources and an evaluation of these three sources with respect to characteristics, and value with respect to the research question.* Each student writes his/her own essay.

Essays/students are evaluated on the following criteria:
- introduction of the question/problem
- search strategy/protocol in each of the sources
- arguments for selection of publications
- evaluation of the three sources and decision of preferred information source
- capability to synthesize data from several experimental sources into a coherent scientific written presentation
- organization of the essay and use of English
- presentation of the paper to the group of students

Evaluation is pass/fail.
Students will receive feedback on all evaluation criteria.


**Module 4: Writing and submitting a paper**
In this module, which will be part of NEVR3004, the aim is to be able to go through the full process of writing and submitting a paper. This module will comprise two lectures and an oral presentation/evaluation session.
The first lecture will deal with rules and ethics of how to cite and how to select an appropriate journal/format. The second will address how to write a scientific paper.
The **outcome** of this module is the required paper for the course, which will have the form of a scientific publication based on a *specific instruction for authors.* Each student writes his/her own essay.
Essays/students are evaluated on the following criteria:
- organization of the paper
- clarity of writing and arguments
- completeness of the paper
- level of adherence to instruction for authors
- use of English
- presentation of the paper to the group of students

Evaluation is pass/fail.
Students will receive feedback on all evaluation criteria.

# Information literacy

A modular approach for the
International Master Programme in Neuroscience

**Module 1:**
**Defining a topic and using elementary concepts on information**
**resources and retrieval**

18.08.2010
Ingrid .I. Riphagen (ingrid.i.riphagen@ntnu.no)
Menno P. Witter (menno.witter@ntnu.no)

**Introduction**

In this modular course 'Information Literacy' we opt to dissect the process of scientific research and accountancy in the format of reports and publications into different components, more or less following the approach chosen in VIKO, the web-based introductory instruction of the library (http://www.ntnu.no/viko/en/)

Aim is to provide you with a sequence of active training moments that are embedded in the obligatory courses NEVR3001 – NEVR3004. These courses are given during the first and second semester of the master program, so you will have relevant practical experience by the time you start with your masterproject.

**Study outcome of the course:**
After the course you are able to:
- ✓ define a research topic
- ✓ find relevant information on that topic
  - o different information sources
  - o quality assessment of sources
  - o how to search in databases
  - o consequences of the chosen search strategy
- ✓ summarize relevant information
- ✓ formulate an experimental research question for your master thesis
- ✓ account for the selection process of information used in your master thesis
- ✓ choose a format and publishing medium that suits your aims and obtained data

**Modules**
1. Defining a topic and using elementary concepts on information resources and retrieval.
2. Advanced level of information retrieval, strategies and evaluation criteria.
3. Sources of information: which and when to use.
4. Writing and submitting a paper.

**Module 1: Defining a topic and using elementary concepts on information resources and retrieval**

As part of the first course (NEVR3001) we will have two practical sessions, the first on how to define a topic for a paper[3] and the second on elementary knowledge about information tools[4].
The **outcome** is an essay of minimal 6 and maximal 10 pages, based on at least 6, maximal 10 *books, book chapters or review papers* that deal with molecular or cellular neuroscience. No primary research papers (individual studies) should be used.

---

[3] A paper is defined as a written text describing a particular item in research according to a fixed format in which a problem is introduced, data are collected in a well described manner and the data are interpreted taking already available scientific information into account.

[4] Information tools are defined as all possible ways to obtain information or sources that contain information, including information on publications, data-repositories, search engines etc.

**Activity 1.**
Form a group with one or two other students to work together on this preparatory phase and report the constitution of the group to the course coordinator Prof. Linda White, through 'Its learning'.

**Activity 2**.
As an individual or as a group:
 a. Study the VIKO module "Defining research topics" on VIKOs website http://www.ntnu.no/viko/en/ . In addition to the 'Mindmap' method used in VIKO, you may consider to use "post-its" (see *addendum 1*) as an efficient tool to brainstorm first on which topic might be of interest and second on how to formulate specific questions for the paper.
 b. Study the module "Information sources" on sources such as books, articles, websites in VIKO, as well as both subject VIKOs Biology and Medicine (see also *addendum 2* for a list of information sources for Neuroscience).
 c. Study the VIKO module "Evaluating information".

**Activity 3. Preparation for the first practical session**
Orientation phase as preparation to define a research topic (see example in *addendum 3*). To this end you will apply mindmaps and evaluation methods, see activity 2.
 a. As a group:
     a. Agree on a global topic selected from the list provided by the course coordinator (see *addendum 4*).
 b. As an individual:
     a. Use any printed or electronic information source for example text books, books on specific topics, introductory text in other media (such as published reviews), etc.
     b. Collect relevant terms, concepts, ideas, theories (English).
 c. As a group:
     a. Collect all information by summing up per individual for example the top three relevant concepts/ideas.
     b. Formulate questions/hypotheses as strictly as possible.
     c. Focus on one question and dissect into its constituting elements, reaching a cellular/molecular level (i.e. relevant to course NEVR3001).
     d. Prepare a summary on how you collected and evaluated all suggestions and what arguments led to the final description of the topic for your paper i.e. the focused problem within the global topic.
     e. Prepare a strategy how you plan to find relevant literature on the chosen focused problem. List key concepts for your paper.
     f. Prepare an oral group report of max 3 minutes on your topic, your focused problem within the topic and the strategy to obtain relevant publications. (Note: Use prescribed format).

**Activity 4. First practical session**
 a. Each group reports their summary and strategy to find relevant publications.
 b. Discussion of each group project and related strategy.

c. Formulation of similarities and differences among groups with respect to strategies
   a. Characteristics of sources (scope, coverage, etc)
   b. Student's preferences/selections (time, language, level etc).
d. Run Exercise 1. Purpose: Feedback on performance regarding use of information sources in activity 3.
e. At this point as a group you need to finalize your question and the elements you want to include in your search for relevant specific publications. So you need to establish: *What exactly do we need to know,* or in other words, what is the information that we lack to write a paper on the topic of our choice.
f. Subsequently you would normally decide *where you would best go to find that information*, i.e. which of the many available tools would be optimal. In this case we have selected those for you, PubMed and Google, and you will use both in the preparatory phase for the second practical session as described under activity 5.
g. Run Exercise 2. Purpose: Initialization for activities 5 and 6.

**Activity 5. Preparation for the second practical session**
a. As an individual: Study once more the evaluation module 'Evaluating information' in VIKO.
b. As a group:
   a. Choose one of the following two tools, Google or PubMed to retrieve publications or information on publications (books, chapters, review articles).
   b. Design a search strategy that includes all the important elements of the question your group has selected. Note that this strategy is essentially the outcome of the first practical session (see Activity 4e).
   c. Implement the strategy in the chosen tool.
   d. Evaluate relevance of the tool and retrieved documents, based on criteria in VIKO and possible own criteria.
   e. Repeat the exact same search in the other tool.
   f. Compare the results of the two searches, evaluate both; which one provides the best yield?
   g. Select the most relevant books/chapters/reviews, i.e. have selection criteria in place relevant to your topic.
   h. Prepare an oral group report incorporating steps a-g. (Note: Use prescribed format).

**Activity 6. Second practical session**
a. Each group reports to all other groups their search strategy to find 6-10 relevant publications, and the evaluation and comparison of both retrieval tools.
b. Discussion of each group project and related strategy.
c. Formulation of commonalities among groups with respect to strategies, feedback on how to make better use of evaluation tools.
d. Run Exercise 3: Purpose: learn how to make better use of search features embedded in PubMeb and a few other often used tools for finding scientific publications: know your database.

**Activity 7. Write your paper**

Write your paper individually.

    a. The text should be an essay of minimal 6 and maximal 10 pages, based on at least 6, maximal 10 *books, book chapters or review papers. Remember: no primary research papers!*

    b. Add a numbered list of the selected 6-10 books, book chapters and/or review papers at the end of your text.

    c. In your text, refer to a publication by its number, followed by page number(s) in case of a whole book.

    d. Submit your paper through 'Its learning' by the deadline (*Thursday 07.10.2010 15.00 hr*) at the latest.

**Use of "post-its" for brainstorming**

"Post-its" is is an alternative for the "mindmap" method for brainstorming.

Your group can use this method to single out a particular topic you are interested in or to decide which part of a topic you want to focus on.
To converge on a topic take five "post-its" per person and list one interesting topic per "post-it". In this way you will in the first round end up with 15 or less possible topics.
One person puts her/his five notes on the wall and the other two position theirs either as a separate entry or match to one of the five already on the wall.
Discuss possible overlap and decide whether there is common ground for the selection of a topic.
If not, repeat the process.

When you agree on a general topic, for example: we want to learn more about Alzheimer's disease, take five "post-its" per person and write down one crucial element that has to be part of your knowledge. In this way you will in the first round end up with 15 or less possible elements that together will constitute (part of) the essential knowledge domain.
One person puts her/his five notes on the wall and the other two have to position theirs either as a separate entry or match to one of the five already on the wall.
You may repeat this process one or two times to reach a level of saturation, i.e. no new items/elements are added.
Continue with Activity 1 of Module 1.

# NEUROSCIENCE INFORMATION SOURCES ONLINE

August 31, 2010

> You are invited to mail me about any information sources specifically interesting to neuroscientists that to your opinion should be added to this inventory. Other feedback is welcome as well. Thank you!
>
> Ingrid Riphagen (mail [Ingrid.i.riphagen@ntnu.no](mailto:Ingrid.i.riphagen@ntnu.no) )

**CONTENTS**

Societies, conferences, conference abstracts
(e)Books
(e)Journals
Databases (bibliographic – fulltext – factual)
Controlled vocabularies, thesauri
Publishers
Metainformation
On information literacy

## Societies, conferences, conference abstracts

- SfN  Society for Neuroscience
- FENS  Federation of European Neuroscience Societies

## (e)Books

- Too many to list. Note the various types of books (text books, encyclopedias & reference books, atlases). Only a small part is freely accessible. In many cases this concerns only a part (preview purpose) or a previous edition. Most student text books are still being published in print editions only.
    - Examples of encyclopedias and reference books
        - Encyclopedia of Biological, Physiological and Health Sciences, in EOLSS Encyclopedia of Life Support Systems, UNESCO. See

table of contents to find neurosubjects. Access by library membership.

- Encyclopedia of Neuroscience. MD Binder et al, 2009, Springer. Access by library license (book collection SpringerLink)
  - o Examples of text books
    - Neuroscience, D Purves et al, 2001, 2nd ed. , Sinauer Ass. Open access.
    - Clinical Neuroanatomy. SG Waxman, 2009, McGraw-Hill. Access by library license (book collection AccessMedicine) **Note**: Access limited to 3 concurrent users at NTNU (August 2010)
    - Adams and Victor's Principles of Neurology. AH Ropper & MH Samuels, 2009, 9th ed., McGraw-Hill. Access by library license (book collection AccessMedicine) **Note**: Access limited to 3 concurrent users at NTNU (August 2010)
  - o Examples of atlases. See also SfN on brain atlases.
    - Atlas of Functional Neuroanatomy. W. Hendelman, 2006. CRC Press. Access by library license (book collection CRCnetBASE)
    - Color Atlas of Neuroscience: Neuroanatomy and Neurophysiology. B. Greenstein & A. Greenstein. 2000, Thieme. Access by library license (Thieme Medical eBook Library).
    - The Alan Brain Atlas resources, Alan Institute for Brain Science. Anatomical and genetic information. Mouse, developing mouse, human. Open access.
    - A Stereotaxic Atlas of the Zebra Finch Taeniopygia guttata. BN Nixdorf-Bergweiler & HJ Bischof, 2007. NCBI.  Open Access.
- Information on online availability of the books recommended for NEVR3001:
  - o Principles of Neural Science. ER Kandel et al, 2000, 4th ed., McGraw-Hill:  No access through eUBiT. Printed copies only
  - o Neuroscience. D Purves et al. 2008, 4th ed., Sinauer Associates: No access through eUBiT. Printed copies only. The publisher only offers free samples of 1 chapter, some figure and an animation. Note that the 2nd edition 2001 is freely available.
  - o Neuroscience, Exploring the Brain. MF Bear et al., 2007, 3rd ed., Lippincott Williams & Wilkins: No access through UBiT. Printed copies only. If you buy the printed book yourself it comes with a CD-rom and additional information online). Selected parts are available from Google Books (For preview purposes only. Copyright protected)
  - o BJ Cohen: Memmler's The Human Body in Health and Disease. BJ Cohen, 2008, 11th ed. Lippincott. William & Wilkins: No access through UBiT. Printed copies only.
- Tools to find out which books exist
  - o Google Books (english site) > search for subjects, titles, authors
  - o Publishers > Product information on books within subject category
  - o PsycINFO search restricted to books
- Tools to find out if e book is available through the library's links and catalog

- o [Overview of NTNU book collections](#) (library package deals) that are most relevant for lifesciences and medicine. Offered by the Medical Library on its website
  - o [NTNU Library](#) > BIBSYS Ask (catalog) > limit to NTNU (use tab 'Sources' and select '…Trondheim') > limit to e-books (use tab 'Advanced search') . e-book packages
- Open access books offered on [NCBI Bookshelf](#) . Examples of titles relevant to neuroscience:
  - o Basic Neurochemistry, Siegel, 1999
  - o The Cell: a molecular approach, Cooper, 2000
  - o Developmental Biology, Gilbert, 2000
  - o Electrochemical Methods for Neuroscience, Michael, 2007
  - o The Epilepsies: Seizures, syndromes and management, Panayiotopoulos, 2005
  - o Frontiers in Neuroscience, Simon et al serie editors, 2006-2008
  - o Imitators of Epilepsy, Kaplan, 2005
  - o An introduction to epilepsy, Bromfield, 2006
  - o Molecular Biology of the Cell, Alberts, 2002
  - o Neuroscience, Purves, 2001
  - o Parkinson's Disease: diagnosis and clinical management, Factor, 2002

## (e)Journals

- Too many to list. Note the various types of journals (review journals, methodological journals, etc.)
  - o Examples of a review journal:
    - [Trends in Neurosciences](#). Elsevier. Access by library license (ScienceDirect)
    - [Nature Reviews Neuroscience](#). NPG Access by library license (Nature publishing Group)
  - o Example of a methods journal:
    - [Journal of Neuroscience Methods](#). Elsevier. Access by library license (ScienceDirect)
- Tools to find out which journals exist
  - o NLM [Journals Database](#) (US National Library of Medicine).
  - o ISI [Journal Citation Reports](#). To open from NTNU library's website. Select eUBiT Databases > JCR Science Edition > Journal Subject Categories > Clinical Neurology. Neuroimaging. Neurosciences. Also under JCR Social Science Edition > Subject Categories > Psychology, experimental etc. Access by library license only.
  - o Publishers > Product information by 1 publisher on journals within subject category > f.ex. [ScienceDirect](#) > Browse by subject > Life Sciences – Neuroscience > exclude 'All books'.
  - o [Ulrich's Periodicals Directory](#) (also listed in eUBiTs Databases) > f.ex. Browse > Subject > M > Medical Sciences, Psychiatry & Neurology. Access by library license only.

- Tool to find information on journals, such as 'impact factors', trends etc in ISI [Journal Citation Reports](#) > Subject category > sort by Impact factor. Access by library licence only

**Databases**

- Bibliographic, i.e. contains citations and abstracts, no full text. Links to full text locations may be available.
  - PubMed (includes MEDLINE). Clinical medicine, biomedicine. Open access. Still you're recommended to open PubMed from [NTNU library, Databases](#) in order to take advantage of links to information on library holdings, full text if allowed by license, and option to order full text from other libraries in Norway (NTNU-link in PubMed). Consider adding ['Pubmed linked to NTNU library'](#) to your favorites.
  - Embase. Access by library license only. Clinical medicine, biomedicine, pharmacology. Open from [NTNU library, Databases](#)
  - PsycINFO. Psychology, psychiatry, behavioral science. Access by library license only. Open from [NTNU library, Databases](#)
  - Web of Science. Science broad: Chemistry, Physics, Geology, Life Science, Biomedicine. Access by library license only. Open from [NTNU library, Databases](#)
  - SCOPUS. Science broad: Chemistry, Physics, Geology, Life Science, Biomedicine. Access by library license only. Open from [NTNU library, Databases](#)
- Fulltext. Contains complete texts of journals, books etc.
  - [PubMed Central](#) (PMC) – open access
  - [DOAJ](#) – open access journals
  - [ScienceDirect](#) – Elsevier journals. Access by library license only.
  - [Wiley Library Online](#) (form. Wiley Interscience). Access by library license, except for 'OnlineOpen' articles.
  - [SpringerLink](#). Access by library license, except for 'Open Access' articles and selected sample free content.
- Factual. Database units represent data or subjects, instead of publications. Several good examples at [NCBI](#) (US National Center for Biotechnology Information):
  - [PubChem](#). Data on (bio)chemical substances, structures, bioactivity, etc. Links to databases with toxicity data, literature, etc.
  - [GenBank](#). Genetic sequence database, an annotated collection of all publicly available DNA sequences
  - [MICAD](#) (Molecular Imaging and Contrast Agent Database), NCBI, 2004-2009 (NCBI Bookshelf)
  - [OMIM](#) (Online Mendelian Inheritance in Man). Compendium of human genes and genetic phenotype.

**Controlled vocabularies**

- NLM Medical Subject Headings (MeSH)

- System of controlled subject terms, designed by US National Library of Medicine
- Use for subject searches in PubMed: MeSH Database
- Based on facets, categories (anatomy, diseases & disorders, etc) and subdivisions.
- Examples of interesting categories and subdivisions (look up subterms):
  - Anatomy Category
    - Animal structures, f.ex. 'Ganglia, Invertebrate'
    - Cells, f.ex. Neuroglia and subterms (such as Astrocytes); Neurons and subterms (such as Lewy Bodies, Pyramide Cells, Senile Plaques)
    - Embryonic Structures, f.ex. Neural Crest
    - Endocrine System, f.ex. Neuroendocrine Cells and subterms
    - Nervous System: Central Nervous System, Ganglia, Nerve Net, Nerve Tissue, Neural Pathways, Neuroglia, Neurons, Neurosecretary Systems, Peripheral Nervous System, Synapses
    - Tissues, f.ex. Nerve Tissue and subterms
  - Diseases Category
    - Bacterial Infections and Mycoses, f.ex. Central Nervous System Infections
    - Nervous System Diseases, f.ex. Demyelinating Diseases + subterms, Neurodegeneative Diseases + subterms, f.ex. Parkinson Disease
  - Analytical, Diagnostic and Therapeutic Techniques and Equipment Category
    - Diagnosis, f.ex. Diagnostic Techniques, Neurological
    - Surgical Procedures, Operative – f.ex. Neurosurgical Procedures
  - Psychiatry and Psychology Category
    - Behavior and Behavior Mechanisms and subterms
    - Behavioral Disciplines and Activities, f.ex. Behavioral Sciences
    - Mental Disorders, f.ex. Sleep Disorders plus subterms
    - Psychological Phenomena and Processes
  - Phenomena and Processes Category
    - Metabolic Phenomena, f.ex. Brain Chemistry
    - Nervous System Physiological Phenomena, f.ex. Evoked Potentials
  - Pharmacological Actions
    - Neurotransmitter Agents, plus subterms
    - Peripheral Nervous System Agents, plus subterms
    - Central Nervous System Agents, plus subterms
- EMTREE

- o Designed by Elsevier Science for subject indexing
- o Use for subject searches in Embase bibliographic database and other Elsevier databases, such as Scopus.
- o Structure similar to MeSH, but content better suited for searches on substances.
- o Integrated part of Embase <u>database</u> (as 'search tool' in Ovids interface offered at NTNU)
- APA Thesaurus of Psychological Index Terms
  - o Designed by the American Psychological Association (APA) for subject indexing of literature
  - o Use for subject searches in PsycINFO bibliographic database and other APA databases
  - o Integrated part of PsycINFO <u>database</u> (as 'search tool' in Ovids interface offered at NTNU)
  - o [APA's information](#) on structure, term clusters and term relations

## **Publishers**

- International Association of Scientific, Technical & Medical Publishers  [IASTM](#) > (main menu:) 'Our Members' > alphabetical list
- [Cambridge University Press](#) > Science, Technology & Medicine > Life Sciences > Neuroscience
- [Elsevier](#) > Products (main menu) > Browse All Subjects > Neuroscience, Psychology a.o. > (left) Browse products within subject >
- [Harvard University Press](#) > Search/Browse > Search Menu, Browse by Subject etc. > Subjects o.a. Medical, Psychology, Science. No specific 'Neuroscience' category
- [Lippincott Williams & Wilkins](#) (clinical focus) > Browse by Specialty > Behavioral Science, Neuroanatomy, Neurology, Neuroscience.
- MIT Press > The Brain Sciences Connection [MIT CogNet](#)
- [Nature Publishing Group](#)  > Browse Subject > Life Sciences > Neuroscience
- [Oxford University Press](#) > Academic, Professional & General  > Medicine & Health >  No specific 'Neuroscience' category
- [Springer](#) > Choose a Discipline > f.ex. Biomedical Sciences > Choose a Subdiscipline > Neuroscience, or f.e. discipline Psychology > subdiscipline Neuropsychology
- [Wiley](#). This is the page you get after selecting: Browse Subjects > Life Sciences > Neuroscience
- Also academic 'Societies' act as publisher.
  - o For example:  [Society for Neuroscience](#)  > tab 'Publications' > f.ex.
    - Abstracts / Annual Meeting Publications
    - Journal of Neuroscience

**Metainformation**

- [Neuroscience Information Framework](#)  (NIF Registry, NIF Web, NIF Data Federation, NIF Literature, NIF Vocabulary NeuroLex, etc)
    - See article on NIF in [Neuroinformatics 2008 by A.Gupta e.a.](#)
        - Comment on NIF Literature: journals Glia and Hippocampus are not in the list. Probably more important neuroscience information sources are missing. Selection criteria?
- Society for Neuroscience:  [Neuroscience Database Gateway](#) (NDG)

**On information literacy**

- VIKO (2010) webcourse UBiT in [Norwegian](#) and [English](#)
- Lezenby, Rick [‘The story of a literature search’](#), Temple University Libraries USA. Elaborated example ‘SSRI’s and neurogenesis’, Last update: May 12th, 2010
- Courses UBiT in database searching and use of EndNote. See [UBiT’s webpages](#). Lectures of the Medical Library will be held in English on request.
- Murray, Rowena (2006)  [How to write a thesis](#). Open University Press.
- Murray, Rowena (2004) [Writing for academic journals](#). Open University Press.
- Lipson, Charles (2005)  [How to write a BA thesis](#): a practical guide from your first ideas to your finished paper. University of Chicago Press.
- Patrias, Karen and Dan Wendling (2007), [Citing Medicine](#): The NLM style guide for authors, editors and publishers, 2$^{nd}$ ed, Bethesda MD (US), National Library of Medicine.
- Pilotsite text-mining system [Textpresso for Neuroscience](#).
    - See also [article](#) in Neuroinformatics 2009.

**Example of how to find a topic and refine it in order to define your final specific topic.**

Alzheimer's disease (AD) is a devastating neurodegenerative disease characterized by a continuously increasing degeneration of the cerebral cortex, in the later stages of the disease accompanied by subcortical degeneration. Decreases in cortical volume are clearly correlated with declined cognitive performance, with an initial focus on conscious memory processes, including autobiographical memory and working memory.
Although the cause of the disease is not yet well understood and several different theories are being investigated, degeneration of cholinergic cell groups in the basal forebrain (nucleus basalis) and the accompanying decreased cholinergic innervation of cortical structures is a commonly observed pathology in AD. Decreases in cholinergic innervation are striking in structures in the medial temporal lobe, i.e. the hippocampus and parahippocampus, structures strongly implicated in conscious memory.
These observations have resulted in the hypothesis that memory decline in AD is **caused** by diminished cholinergic innervation. Although this hypothesis in that simple form currently does not have too many followers anymore, several of the currently available treatments are based on this hypothesis. It is reasoned that if memory impairment co-occurs with loss of cholinergic innervation, and animal studies show that diminished cholinergic innervation results in poor memory performance, impaired memory performance as seen in AD can be augmented by increasing the amount of available acetylcholine. One approach would be to inhibit the activity of the metabolic enzyme acetylcholinesterase, which would result in a lowered breakdown of the transmitter acetylcholine. Over the last decades, several of such therapeutic approaches have been marketed but unfortunately the results are at best a short term improvement of cognitive capacities.

**Global > specific**:

Alzheimer's disease > causes of AD > role of cholinergic innervation / lowered levels of acetylcholine cause AD > 'example questions' that are specific and  relevant to NEVR3001

**Example questions**
1. What are possible mechanisms for acetylcholine to enhance memory processes?
2. What do we know about the mechanisms through which acetylcholinesterase regulates the levels of the transmitter acetylcholine?
3. Are there possible other ways to manipulate the levels of the transmitter acetylcholine?
4. Are there possible other ways to manipulate the efficacy of the transmitter acetylcholine?

**Course topics for compulsory course papers**

<u>Deadline for submission through Its learning</u>: *Thursday 07.10.2010 15.00 hr*

**Requirements**
- e. The text should be an essay of minimal 6 and maximal 10 pages, based on at least 6, maximal 10 *books, book chapters or review papers. Remember: no primary research papers!*
- f. Add a numbered list of the selected 6-10 books, book chapters and/or review papers at the end of your text.
- g. In your text, refer to a publication by its number, followed by page number(s) in case of a whole book.

**Topics**

1.  Axonal transport mechanisms: housekeeping and synaptic function (LW).
2.  Synaptic plasticity and signal reinforcement (LW).
3.  Molecular mechanisms of axon guidance during development (MPW).
4.  Molecular mechanisms of neuronal differentiation in the CNS (MPW).
5.  The molecular basis of Alzheimer's disease (MPW).
6.  The pathology of peripheral neuropathy in diabetes (RF).
7.  Neuronal excitability in epilepsy (RF).

LW = Linda White
MPW = Menno Witter
RF = Roar Fjær