

**NATIONAL UNIVERSITY OF LIFE AND
ENVIRONMENTAL SCIENCES**

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*Legal and Economic Aspect How to Write Scientific Papers:
Methodical Guidelines for Future Scientists*



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Викладено методичні рекомендації та вказівки з метою формування у майбутніх науковців вмінь та навичок щодо вивчення, збору, аналізу необхідної інформації для написання наукових статей, наукових робіт, доповідей або виступів на семінарі чи конференції, описової частини щодо підготовки проєктів. Запропоновано базову структуру наукових доробок з дотриманням нормативних положень академічної доброчесності. Звернено увагу майбутніх дослідників-науковців на стилістику наукової мови.

Запропоновані наукові рекомендації та методичні вказівки можуть бути корисними також для організаторів науково-практичних семінарів, круглих столів, дискусій, конференцій у різних сферах діяльності.

Навчально-методичне видання

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Правовий та економічний аспект написання наукових робіт: методичні вказівки для майбутніх науковців.

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1. REPORT WRITING

1.1. What is a report?

A report is a structured written scientific presentation directed to interested readers or researchers in response to some specific or essential purpose, aim or request. There are many varieties of reports, but generally their function is to give an account of something, to answer a question, or to offer a solution to a problem.

There are some features which organize any effective report. They are as follows: appropriate to its purpose and audience; accurate; logical; clear and concise; well organize with clear section headings.

Usually two main types of reports are defined: practical and academic.

Talking about practical report we must remember that in the practical world of business or government, a report conveys information and (sometimes) recommendations from a researcher who has investigated a topic in detail. A report like this will usually be requested by people who need the information for a specific purpose and their request may be written in terms of reference or the brief. Whatever the report, it is important to look at the instructions for what is wanted. A report like this differs from an essay in that it is designed to provide information which will be acted on, rather than to be read by people interested in the ideas for their own sake. Because of this, it has a different structure and layout.

An academic report is a report written for academic purpose by a researcher or top creative scientist. Just imagine that someone wants to report for a practical purpose, although we are really writing the report as an academic exercise for assessment. Theoretical ideas will be more to the front in an academic report than in a practical one. Sometimes a report seems to serve academic and practical purposes. Postgraduate students or those who obtain Master Degree often have to produce a report for the organisation and for assessment on the course. Although the background work for both will be related, in practice, the report the student produces for academic assessment will be different from the report produced for the organisation, because the needs of each are different.

1.2. Report structure

Talking about report structure, we have to consider one important thing, which is at the same time advantage for a speech writer: a report has over other written communication is that it follows a abeleding format. This enables readers to find and focus on specific pieces of information. Most reports are organiz on the following structure (modified where necessary):

1. Title page
2. Table of contents
3. Abstract or Executive Summary
4. Introduction
5. Materials and methods
6. Results
7. Discussion
8. Conclusions
9. Recommendations
10. Bibliography

A report is used for reference and is often quite a long document. It has to be clearly structured for you and your readers to quickly find the information wanted. Follow guidelines given to you when asked to write the report, but, if not given any, the format below is generally acceptable. If you are not supplied with a required or recommended outline, this one will probably suffice, although not every report will need all the sections. If you do have a recommended outline, you should use that, but the plan below will help to explain what goes into each section.

You need to plan carefully to make sure that the information which you have gathered gets put under the correct headings. Decide on your headings and subheadings.

The headings and subheading you need will be determined by the aims of your report and the requirements of your course. Make a list of the main parts that you will need for your report. Then add your own headings and subheadings as appropriate. Go through the material you have gathered and list all your points and any supporting information under the appropriate headings. (Now take a break and come back later, refreshed).

Go through the points under each heading and underline the most important. Cross through any that seem irrelevant, or put them under another heading if they are out of place. Leave the points which you are unsure about. You can decide whether to include or reject them later. Arrange the headings into a logical sequence. Read through what you have planned and decide whether or not to include the points about which you were unsure. Decide what supporting information should go into the appendices and what should remain in the main body.

Consider what recommendations (if required) should be made. Write a full draft, taking account of the points on structure outlined above, and the points on layout outlined below.

1.3. Procedure for report writing

It is not sensible to leave all you writing until the end. There is always the possibility that it will take much longer than you anticipate and you will not have enough time. There could also be pressure upon available wordprocessors as other students try to complete their own reports. It is wise to begin writing up some aspects of your research as you go along. Remember that you do not have to write your report in the order that it will be read. Often it is easiest to start with the method section. Leave the introduction and the abstract to last. The use of a wordprocessor makes it very straightforward to modify and rearrange what you have written as your research progresses and your ideas change. The very process of writing will help your ideas to develop. Last but by no means least, ask someone to proofread your work.

Everyone, who involved into scientific research or investigation has to be ready for writing reports, but for most of researchers writing is always a problem. There is an abstract below. Read it attentively. You will find a lot of things familiar to you.

« . . . Writers are big procrastinators. They find countless reasons not to get started. Even when they finally get themselves seated at their desks, they always seem to find diversions: make the coffee, sharpen the pencil, go to the bathroom, thumb through more literature ... Remember that you are never ready to write; writing is something you must make a conscious decision to do and then discipline yourself to follow through. . . » (Bogdan, R.C. and Biklen S.K. 1982).

It is easier said than done, but do not keep on waiting until you are «in the mood.» It will not happen. Make an early start and write up a section as soon as it is ready. You should not leave all your report writing until after your research is completed. Instead, get into a habit of writing up sections while your research is still in progress. Using a wordprocessor means that it is simple to go back and make changes as your ideas develop or as new data are discovered. Start writing with a section about which you feel reasonably confident. Do not sit and stare at a blank screen or page, just get writing. Remember that this is only a first draft. It does not have to be perfect. Your literature review can be written up early on (and added to if you read more or as you discover more). The methodology section is often reasonably straightforward to write. (Remember, the abstract should be left until the end). Don't forget about deadline. You should always think about it. So, set yourself deadlines. Your timetable for doing your research should include a timetable for writing your report.

Within the writing timetable, set yourself deadlines for different pieces of writing. Try to write regularly. As with all studying, «little and often» will bring better results than doing nothing for days and then working flat out through a day and a night. When you stop, try to be clear what you will be writing next and avoid stopping at a place where the next step will be difficult: this could deter you from getting started again. Let your friends, family and flatmates know that you are busy writing and explain that it is important that it's rather important for you not to be disturbed.

We have to follow certain procedures which are suggested below, as to how we might proceed in compiling and presenting a report.

There are three main stages: planning; writing; formatting, revising and proof-reading.

Stage one usually concerns planning. While planning we must define the purpose of our report, consider about audience, establish parameters, and at last start to gather the information we need. Look carefully at the Table One. Learn it and always follow it.

Stage two deals with report writing. Eventually, writing is divided into three stages: a) writing the body; b) writing the abstract (or executive summary); c) writing the supplementary material.

- | | |
|----------------------------|--|
| 1. Defining the purpose | <ul style="list-style-type: none">- read the brief carefully;- identify key words;- make sure you know what's really being asked. |
| 2. Defining the audience | <ul style="list-style-type: none">- determine your audience's level of understanding;- determine what your audience needs to know. |
| 3. Establishing parameters | <ul style="list-style-type: none">- determine the scope and level of detail required;- determine the length of the report and what can be covered in that length. |
| 4. Gathering information | <ul style="list-style-type: none">- make sure the information you gather is relevant, contemporary and factually correct;- make sure that you transcribe facts and figures correctly. |

1.4. Writing the body

There are four components of the body of the report: the introduction, the discussion, the conclusion and the recommendations.

The *introduction* leads into the main subject matter by giving the necessary background of the report, its aims, premises, scope, limitations, approach intended audience, possible benefits and any instructions that may be useful for the reader. If specialist terms are used in the report, define them clearly. It puts the discussion in perspective, explains why the report is necessary and gives background information on the subject matter.

The *discussion* is the main body of the report. Use headings and sub-headings. It describes analyses, interprets and evaluates the procedures, data, findings, relationships, visual material, methodology and results in the report. This material should be presented in an order that leads logically towards the conclusions and recommendations.

While writing the discussion section of the body, you should first of all pitch at appropriate level, then organize material logically, use clear, concise language. Don't forget to give concrete examples.

Conclusions are drawn from evidence, analysis, interpretation and evaluation presented in the discussion. No new material should be introduced; the conclusions should follow logically from the discussion. The Conclusions section should concerns conclusions, key points and main findings.

The *recommendation* section (when used – not all reports give recommendations) should present your informed opinions, suggestions, possible actions to be taken, applications and recommendations arising from a rational consideration of the discussion and conclusions. Your own recommendations might be definite, perceptive, imaginative and rational.

1.5. Abstract or executive summary

Once the body of the report is written, write the abstract. The abstract (also known as the Executive Summary) is a concise summary presentation of the essential elements of the report, from the introduction through to and including the recommendations. It should be independent (can be read on its own), comprehensive (covers all the main points), clear and concise. As a general rule it should be short, only 10-15% of the length of the report, and should be written in full sentences and paragraphs. It should include a summary of the following:

- Purpose
- Scope
- Achievements
- Main points
- Conclusions
- Recommendations

Never forget about writing *the supplementary material*. You have to mention about *transmittal document* which is not the part of the report, but accompanies the report. It, as a rule, personalises the report for a specific reader and calls attention to those items or sections in the report which are of particular interest to that person.

Just remember, you have to identify the report with the following information:

- Title
- Author's name, position and qualifications

- Authority for report
- Place of origin
- Date

Stage three illuminates rather important items of report writing. They are: formatting, revising and proof-reading. There is a certain “*report checklist*” which should be applied if necessary. Remember and always follow it if you want your report is perfect.

Report checklist:

1. Have I fulfilled the purpose of the report?
2. Is it written at a level appropriate to its audience?
3. Are its facts correct?
4. Is it comprehensive?
5. Is all the included information relevant?
6. Are the layout and presentation well thought out?
7. Is the style clear, concise and professional?
8. Does the abstract summarise?
9. Does the introduction adequately introduce the discussion?
10. Is the discussion organised logically?
11. Does the conclusions section interpret, analyse and and evaluate?
12. Are the recommendations reasonable?
13. Does the table of contents correspond with the actual contents? Are page numbers correct?
14. Have I acknowledged all sources of information through correct referencing?
15. Have I checked spelling, grammar and punctuation?
16. Have I carefully proof-read the final draft.

1.6. Parts of a report

Cover Sheet The cover sheet usually contains some or all of the following:

1. Full title of the report;
2. Your name and the name of the unit of which the project is a part;
3. The name of the institution and the date.

Title Page. It includes full title of the report and your name.

Acknowledgements mean that you have to express your deep gratitude to those people who helped you in project activities.

Contents or Table of Contents

What is the table of content? The table of contents shows the section titles and major headings listed in order of appearance and indicate page locations. Standard page numbering begins with the Introduction.

Headings and subheadings used in the report with their page numbers. Remember that each new chapter should begin on a new page.

Use a consistent system in dividing the report into parts. The simplest may be to use chapters for each major part and subdivide these into sections and subsections. 1, 2, 3, etc, can be used as the numbers for each chapter. The sections for chapter 3 (for example) would be 3.1, 3.2, 3.3, and so on. For a further subdivision of a subsection you can use 3.2.1, 3.2.2, and so on.

There are no hard and fast rules about the structure. Compare what follows with his example of a «standard format», and see if you can understand the principals.

1. Theoretical overview (incorporating any necessary literature review)
2. Outline of your methodology
3. Analysis and presentation of your findings
4. Discussion (or summary) and conclusions

Abstract or Summary or Executive Summary or Introduction

This is the **overview** of the whole report. It should let the reader see, in advance, what is in it. This includes what you set out to do, how reviewing literature focused and narrowed your research, the relation of the methodology you chose to your aims, a summary of your findings and of your analysis of the findings.

BODY

Aims and Purpose or Aims and Objectives

Why did you do the work? What was the problem you were investigating? If you are not including a literature review, mention here the other research which is relevant to your work.

Literature Review: This should help to put your research into a background context and to explain its importance. Include only the books and articles which relate directly to your topic. Remember that you need to be analytical and critical and not just describe the works that you have read.

Methodology

Methodology deals with the methods and principles used in an activity, in this case research. In the methodology chapter you explain the methods you used for the research and why you thought they were the appropriate ones. You may, for example, be doing mostly documentary research or you may have collected your own data. You should explain the methods of data collection, materials used, subjects interviewed, or places you visited. Give a detailed account of how and when you carried out your research and explain why you used the particular methods which you did use, rather than other methods. Included in this discussion should be an examination of ethical issues.

Results or Findings.

You have to define your findings. Give a clear presentation of your results. Show the essential data and calculations here. You may want to use tables, graphs and figures.

Analysis and Discussion

Interpret your results. What do you make of them? How do they compare with those of others who have done research in this area? The accuracy of your measurements or results should be discussed and any deficiencies in the research design should be mentioned.

Conclusions

What do you conclude? You should summarize briefly the main conclusions

which you discussed under “Results.” Were you able to answer some or all of the questions which you raised in your aims? Do not be tempted to draw conclusions which are not backed up by your evidence. Note any deviation from expected results and any failure to achieve all that you had hoped.

Recommendations

Make your recommendations, if required. Positive or negative suggestions for either action or further research.

Appendix

You may not need an appendix, or you may need several. If you have used questionnaires, it is usual to include a blank copy in the appendix. You could include data or calculations, not used in the body, that are necessary, or useful, to get the full benefit from your report. There may be maps, drawings, photographs or plans that you want to include. If you have used special equipment, you may want to include information about it.

The plural of an appendix is two or more appendices or appendixes. If an appendix or appendices are needed, design them thoughtfully in a way that your readers will find convenient to use.

Bibliography

List all the sources to which you refer in the body of the report. These will be referenced in the body of the text using the Harvard method. You may also list all the relevant sources you consulted even if you did not quote them. A more confusing method is sometimes asked for in which you provide two lists of sources, one labeled “References” and the other “Bibliography”. If you can avoid doing this, please, do so.

1.7. Literature review

A literature review should demonstrate that you have read and analysed literature relevant to your topic. You should select and analyse the books and articles with respect to their relevance to your own project. The aim of the review is to provide you and your readers with a picture of what is already known about what you

are researching. As well as describing the reading, you should explain how it relates to your project.

Note that the Literature review includes only those references that were actually mentioned (cited) in the paper. Any other information that the researcher may have read about the problem but did **not** mention in the paper is **not** included in this section. This is why the section is called “Literature Cited” instead of “References” or “Bibliography”.

The system of citing reference material in scientific journals varies with the particular journal. The method that you will follow is the “author-date” system. Listed below are several examples of how citations should be presented in the text of your paper. The name(s) of the author(s) and year of publication are included in the body of the text. Sentence structure determines the placement of the parentheses.

One author: ‘Scott’s (1990) model fails to ...’ or ‘The stream model (Scott 1990) is ...’

Two authors: ‘Libby and Libby (1991) show...’ or ‘Previous moose migration studies (Libby and Libby 1991)...’

Three or more authors: ‘Roche *et al.* (1991) reported that ...’ or ‘During April, moose sightings increased over those in a previous study (Roche *et al.* 1991)’

Entries in the Literature Cited section are listed alphabetically by author(s) and chronologically for papers by the same author(s). The following citations illustrate the details of punctuation and order of information for a journal article, book, Internet source, and your laboratory packet.

Schneider, M.J., Troxler, R.F. and Voth, P.D. 1967. Occurrence of indoleacetic acid in the bryophytes. *Bot. Gaz.* 28(3): 174-179.

Stebbins, G.L. 1977. *Processes of Organic Evolution*. Prentice-Hall, New Jersey. 269 pp.

MSW Scientific Names: *Microtus ochrogaster*. Online. Smithsonian Institution. Available: <http://www.nmnh.si.edu/cgi-bin/wdb/msw/names/query/22128>. updated August 8, 1996 [accessed 8/10/98]

Colby Biology Department. 1998. Salt Tolerance in *Phaseolus vulgaris*. In: *Introduction to Biology: Organismal Biology*. Waterville, ME: Colby Custom Publishing

Generally, most references will be to the primary literature (i.e., journal articles) and, to a lesser extent, books. Popular literature and the Internet should be used sparingly and with caution. Other sources such as book chapters and pamphlets typically have their own specific citation formats. If necessary, be sure to find out what these formats are and use them appropriately

A literature review should be proportional to the size of the project. The background reading for an undergraduate review essay would be less thorough than that for a final year extended project. That, in turn, would be less thorough than for a postgraduate dissertation. For postgraduate and final year undergraduate dissertations, you will not rely heavily on textbooks and collections of readings, but should be consulting and citing a reasonable number of original journal articles and research based books. Your literature search should establish what previous research has been carried out in the subject area. Broadly speaking, there are three kinds of sources you will want to consult: introductory materials, journal articles, books. To get a background idea of your topic you may wish to consult one or more textbooks at the appropriate level(s). Ask your tutor, and consult the library catalogue.

If you are to prepare an academic writing, it is a good idea to do your review in cumulative stages. Please, do not think you can do it all at once. But keep a careful record of what you have searched, how you have gone about it, and the exact citations and page numbers of your reading. Write notes as you go along. Don't forget to record suitable notes on everything that you read, note methods of investigation. Make sure that you keep a full reference, complete with page numbers. You have to find your own balance between taking notes that are too long and detailed and ones too brief to be of any use.

It would be better to write your notes in complete sentences and paragraphs, because research has shown that you are more likely to understand your notes later if they are written in a way that other people would understand. Keep your notes from different sources or about different points on separate index cards or on separate sheets of paper.

You will do mainly basic reading while you are trying to decide on your topic. You may scan and make notes on the abstracts or summaries of work in the area. Then do a more thorough job of reading later on, when you are more sure of what

you are doing. If your project spans several months, it would be sensible towards the end to check whether there are any brand new useful references.

1.8. Style of writing

Be clear and concise: Write briefly and to the point. Say what you mean **clearly** and avoid embellishment with unnecessary words or phrases. **Brevity** is very important. Use of the active voice alone shortens sentence length considerably.

Precise word use is critical: Scientific terminology carries specific meaning – learn to use it *appropriately* and use it *consistently*. A critical function of technical terminology is to say a lot with a few words, i.e., *economy*. This applies as well to appropriate *acronyms* (e.g., PCR) and *abbreviations*. Direct your paper toward the average reader in your intended audience. If writing for a highly technical journal, you will necessarily use the technical jargon. If writing for a general science audience you would limit the jargon.

Some things to avoid:

- You do not have to try to impress people by using words most people have never heard of. Many published articles are like this, and they are poor papers on account of it.
- *Do not* use colloquial speech, slang, or «childish» words or phrases.
- Do not use contractions: for example, «don't» must be «do not» and «isn't» must be «is not» etc.

Layout

Most reports have a progressive numbering system. The most common system is the decimal notation system.

The main sections are given single abele numbers- 1, 2, 3 and so on.

Subsections are given a decimal number -1.1, 1.2, 1.3 and so on.

Sub-sections can be further divided into -1.1.1, 1.1.2, 1.1.3 and so on.

Abbreviations

Do not use abbreviations in the text *except* for units of measure. Always abbreviate these when using them with data (2 mm; 10 min.). Except for temperature units (F,C, K) never abbreviate units of measure when using them in a non-data

context (e.g., “we measured length in millimeters”, “time was recorder in minutes”, “temperature was measured in F (or C)”, “*100 years have passed since Mendel did...*”).

This list presents the most common abbreviations you will use in general biology, especially those for units of measure.

1.9. General Rules for Abbreviating Units of Measure

- Always abbreviate units when reporting numerical information.
- Unless otherwise noted, **singular** and **plural** units are abbreviated the same.
 - *Percent* is not abbreviated, but is represented by the familiar «%» symbol.
- Always put a space between the *number* and *unit*, e.g., 203.65 m, 457 μm
- **pH**: The proper method for reporting pH is to place the unit before the number (pH 7); never insert the word «of» between the unit and number and avoid splitting the unit and number within a sentence – they should always go together.
- When do you *abbreviate* units vs. *Spelling out* the unit(s) as word(s)?
 - *abbreviate* units when you are reporting a numerical value:

“The maximum debth achieved by the ROV was 124 m approximately 2.3 km due south of Pt.lobos.”

- *spell out* the unit as a word when using it in a non-numerical context, e.g.,
“All measurements were made in millimeters unless otherwise indicated.”

- When starting a sentence with a number and unit, both must be spelled out as words (this is something to avoid, if possible), e.g.,

*“One thousand six hundred and eighty-seven kilograms of ground beef were randomly sampled and tested for **E.coli** contaminants between 21 August and 21 November, 2014”.*

1.10. The Metric System

The Metric System of measurement is the standard used by most scientific disciplines. The system is based upon measures of distance (in meters), volume (in liters), and mass (in grams). Scales of measurements increase or decrease as multiples

of ten which facilitates expression of measurement values using the decimal system. The table below shows the most common prefixes and their relative magnitudes.

Prefix	Scientific Notation	Decimal equivalents	Example Units
kilo- (k)	$= 10^3$	$= 1000$	kilogram (kg); kilometer (km)
centi- (c)	$= 10^{-2}$	$= 0.01$	centimeter (cm)
milli- (m)	$= 10^{-3}$	$= 0.001$	milligram (mg); millimeter (mm)
micro- (u)	$= 10^{-6}$	$= 0.000001$	microgram (ug) microliter (uL)
nano- (n)	$= 10^{-9}$	$= 0.000000001$	nanogram (ng) nanoamperes (nA)
pico- (p)	$= 10^{-12}$	$= 0.000000000001$	picogram (pg) picoamperes (pA)

Conversions

Units of Distance and Length

Metric Equivalents

$$1 \text{ km} = 1000 \text{ m}; 1 \text{ m} = 100 \text{ cm} = 1000 \text{ mm} = 10^6 \text{ um} = 10^9 \text{ nm}$$

Metric Unit	multiplied by	= English Unit
millimeters	0.0394	inches (in)
centimeters	0.394	inches
centimeters	0.0328	feet (ft)
meters	39.4	inches
meters	3.28	feet
meters	1.1	yards (yd)
kilometers	3,281	feet
kilometers	0.621	miles (mi)

English Equivalents

$$1 \text{ mi} = 1,760 \text{ yd} = 5,281 \text{ ft}; 1 \text{ yd} = 3 \text{ ft} = 36 \text{ in}$$

English Unit	multiplied by	= Metric Unit
inches (in)	25.4	millimeters
inches	2.54	centimeters
inches	0.254	meters
feet (ft)	30.48	centimeters
yards (yd)	91.44	centimeters
yards	0.9144	meters
miles (mi)	1.609	kilometers

Units of Mass

Metric Equivalents

$$1 \text{ mt (metric ton)} = 1000 \text{ kg} = 2,205 \text{ lb}$$

$$1 \text{ kg} = 1000 \text{ g} = 2.205 \text{ lb} = 35.2802 \text{ oz}$$

$$1 \text{ g} = 1000 \text{ mg} = 10^6 \text{ ng} = 10^9 \text{ pg}$$

Metric Unit	Multiplied by	= English Unit
gram (g)	0.035	ounces (oz)
kilogram (kg)	2.2	pounds (lb)
metric ton (mt)	1.102	ton (t)

English Equivalents

$$1 \text{ ton} = 2000 \text{ lb} = 907.2 \text{ kg} \text{ or } 0.9072 \text{ mt}$$

$$1 \text{ lb} = 16 \text{ oz} = 0.4536 \text{ kg} = 453.6 \text{ g}$$

English Unit	Multiplied by	= Metric Unit
ounce (oz)	28	grams (g)
pound (lb)	0.4536	kilograms (kg)
tons (t)	0.9072	metric tons (mt)

Units of Volume

Metric Equivalents

$$1 \text{ cm}^3 \text{ (or cc)} = 1000 \text{ mm}^3 = 0.061 \text{ in}^3$$

$$1 \text{ m}^3 = 10^6 \text{ cm}^3 = 61,024 \text{ in}^3 = 35.31 \text{ ft}^3 = 1.308 \text{ yd}^3$$

Metric Unit	Multiplied by	= English Unit
cubic centimeters (cm ³)	0.061	cubic inches (in ³)
cubic meters (m ³)	35.31	cubic feet (ft ³)
cubic meters	1.308	cubic yards (yd ³)

English Equivalents

$$1 \text{ ft}^3 = 1,728 \text{ in}^3 = 28,317 \text{ cm}^3 = 0.02832 \text{ m}^3$$

$$1 \text{ yd}^3 = 27 \text{ ft}^3 = 0.7646 \text{ m}^3$$

English Unit	Multiplied by	= Metric Unit
cubic inches	16.393	cubic centimeters
cubic feet	0.03	cubic meters
cubic yards	0.76	cubic meters

Units of Liquid Volumes

Metric Equivalents

$$1 \text{ L} = 1000 \text{ ml} = 2.113 \text{ pt (pints)} = 1.06 \text{ qt (quarts)} = 0.264 \text{ US gal}$$

$$1 \text{ ml (or cm}^3\text{)} = 1000 \text{ ul} = 0.03 \text{ fl oz (fluid ounces)}$$

Metric Unit	Multiplied by	= English Unit
milliliters (ml)	0.02957	fluid ounces (fl oz)
liters (L)	2.13	pints (pt)
liters (L)	1.0567	quarts (qt)

English Equivalents

$$1 \text{ US gal} = 4 \text{ qt} = 8 \text{ pt} = 128 \text{ fl oz} = 3.785 \text{ L}$$

$$1 \text{ qt} = 2 \text{ pt} = 32 \text{ fl oz} = 946.4 \text{ ml or } 0.9464 \text{ L}$$

$$1 \text{ pt} = 16 \text{ fl oz} = 473.2 \text{ ml or } 0.213 \text{ L}$$

$$1 \text{ fl oz} = 29.57 \text{ ml}$$

English Unit	Multiplied by	= Metric Unit
teaspoons (tsp)	5	milliliters (ml)

tablespoons (tbsp)	15	milliliters
fluid ounces (fl oz)	29.57	milliliters
cups ©	0.24	liters (L)
pints (pt)	0.4732	liters
quarts (qt)	0.9464	liters
US gallons (US gal)	3.785	liters

Units of Area

Metric Equivalents

$$1 \text{ km}^2 = 100 \text{ ha} = 1,000,000 \text{ m}^2 = 270 \text{ A (acres)} = 0.3861 \text{ mi}^2$$

$$1 \text{ ha (hectare)} = 10,000 \text{ m}^2 = 107,600 \text{ ft}^2 = 2.471 \text{ A}$$

$$1 \text{ m}^2 = 10,000 \text{ cm}^2 = 1,000,000 \text{ mm}^2 = 1,550 \text{ in}^2 = 1.196 \text{ yd}^2$$

$$1 \text{ cm}^2 = 100 \text{ mm}^2 = 0.155 \text{ in}^2$$

$$1 \text{ mm}^2 = 1,000,000 \text{ um}^2$$

Metric Unit	Multiplied by	= English Unit
centimeters squared	0.155	inches squared
meters squared	1.196	yards squared
kilometers squared	0.3861	miles squared

English Equivalents

$$1 \text{ mi}^2 = 640 \text{ A} = 27,878,400 \text{ ft}^2 = 259 \text{ ha} = 2.59 \text{ km}^2$$

$$1 \text{ A} = 4,840 \text{ yd}^2 = 43,560 \text{ ft}^2 = 4,407 \text{ m}^2 = 0.405 \text{ ha}$$

$$1 \text{ yd}^2 = 9 \text{ ft}^2 = 1296 \text{ in}^2 = 8,361 \text{ cm}^2 = 0.836 \text{ m}^2$$

$$1 \text{ ft}^2 = 144 \text{ in}^2 = 929 \text{ cm}^2$$

$$1 \text{ in}^2 = 6.452 \text{ cm}^2$$

English Unit	Multiplied by	= Metric Unit
inches squared	6.452	centimeters squared
feet squared	0.0929	meters squared
yards squared	0.836	meters squared
acres (A)	0.405	hectares (ha)
miles squared	2.59	kilometers squared

Units of Temperature

Temperature Equivalents

K = Kelvin / C = Celcius / F = Fahrenheit

0 K = -273.15 C = absolute zero (no molecular motion)

273.15 K = 0 C = 32 F = freezing point of water/ melting point of ice

373.15 K = 100 C = 212 F = boiling point of water

Fahrenheit (F) to Celcius © Conversion

(degrees F-32) * 5/9 = degrees C

Celcius © to Fahrenheit (F) Conversion

(degrees C *9/5) +32 = degrees F

Units of Concentration

Concentration *usually* refers to a mass/volume relationship.

Percent (%)	<p>= grams solute / 100 ml solvent; To convert to molar concentration multiply grams by 10, then divide by the formula weight (FW) of the solute.</p>
Molarity (M)	<p>= moles solute per liter of solvent For example, 1 M = 1 mole/liter; where, 1 mole = 6.023×10^{23} molecules = 1 molecular weight (MW) ~ 1 formula weight (FW) Molarity may also be expressed as mM (millimolar), where 1 mM equals 10^{-3} M, when working with low concentrations.</p>

Salinity	<p>= grams <i>total solutes</i> per kg of seawater</p> <p>Salinity is usually expressed as “parts per thousand” = ppt. Coastal seawater has approximately 30-32 g solutes per kg = 30-32 ppt salinity.</p>
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Units of pH

In contrast to other units, report pH with the unit before the number: e.g., pH 8.2. When reporting a series of pH values, report the unit only at the beginning: e.g., buffered to pH 3, 5, 7, and 9....

Units of Time

The most frequent units time used in the biological sciences are:

Years	yr
Days	d
Hours	h
Minutes	min
Seconds	sec or s
Milliseconds	msec

Tenses

Reflective writing often requires movement between past and present tenses, depending on whether you are recounting the actual events or making a more general comment (for example, on the doctor-patient relationship, or on an aspect of your current course). Remember, when recounting a particular experience or incident, past tense is used. Research papers reflect work that has been completed, therefore use the past tense throughout your paper (including the Introduction) when referring to the *actual work* that you did, including statements about your expectations or hypotheses. Use the past tense, as well, when referring to the work of others that you may cite. Study the following examples:

Example 1

*As part of my placement at the Echuca Base Hospital I **worked** closely with the nursing staff. I **was** **impressed** by the rapport they **had** with their patients – while*

*performing their duties professionally they often **joked** with the patients, and in that way maintained a **relaxed** and pleasant atmosphere on the ward. I **noticed** that the nurses **had** more regular contact with patients than the doctors, and consequently **seemed** to develop a closer relationship.*

Example 2

*When two of the clients who had come with their pets **became** agitated I **did** not know what to do. I **asked** them to return to their places, but they simply **ignored** me. I **did** not know what the correct procedure **was** in this situation.*

When making a general comment or relating an incident to current practice or to a particular theoretical perspective, present tense is normally used.

Example 3

*It **seems** that the roles of nurses and doctors **are** quite different, and that doctors **need** to acknowledge the importance of the nurse-patient relationship.*

Example 4

*Clearly **making** new staff aware of the procedures and rules **is** important when they join a new workplace or institution.*

*Continue **Example 4** by linking what you have learnt from an incident directly to how you plan to behave in your future career. Try adding 1 or 2 more sentences to **Example 4**.*

Speculative and hypothetical writing

In reflective writing you may be asked to speculate about the future, or about a hypothetical situation. For example, you may be asked to comment on whether you would like to practice in a rural area in your future career. Notice in the example below the movement between past and present tenses, and the use of **“would”** when speculating about the future.

Example 5

*Although my rural placement was a very positive experience, I **would not like** to work in the country when I first graduate. There are several reasons for this. Firstly, being a country doctor of veterinary medicine is more challenging – you do not have the support networks available in the city, so you have to cope with many*

*different situations. Also, you have less privacy. In the country I **would have to** behave as the local doctor all the time, 24 hours a day. There **would not be** an opportunity to just be myself and not worry about what people think. Living in the country I **would be** far away from my family, and **might** feel lonely for that reason. Finally, I **would have to** focus on general practice, whereas my interest lies in more specialized areas of veterinary medicine.*

Example 6

*As soon as I started there, I **could see** that having a good working relationship with the nurses **would make** my job much easier, and **would** possibly **result** in better health care for my animals- patients.*

Tentative statements

Research in Science is cumulative which means that research conducted today may depend to a large extent on the work of numerous other researchers over a long period. The results of experiments are rarely conclusive and findings may later be shown to be inaccurate or based on false assumptions. For these reasons it is a good idea to be fairly tentative in your writing in the results and discussion sections.

Make tentative statements rather than direct, categorical ones. For example, rather than writing “*This experiment proves...*” it is preferable to use expressions such as:

- * *tends to...*
- * *appears to...*
- * *suggests that...*
- * *would seem to...*

In order to express tentative statements you can use **limiting words, modal verbs, and softening or hedging verbs.**

Limiting words

Examples of limiting words

- * *possible or possibly*
- * *probable or probably*

- * *likely.*

Limiting words in sentences

- * *It is **possible** that the use of a different model...*
- * *It is **likely** that vinculin localises in low amounts at the basement membrane...*

Modal verbs

These change the strength of the main verb and indicate that there is a room for doubt.

Examples of modal verbs

- * *may or may be*
- * *might, might be or might have been*
- * *could be*
- * *could have been*
- * *would*
- * *would have been.*

Modal verbs in a sentence

- * *The data appear to support the hypothesis, but further sampling **would** need to be undertaken to increase the reliability of the final result.*

Note that this sentence also includes the softener ‘appear’.

Softening’ or ‘hedging’ verbs

Examples of softening or hedging verbs

These include verbs such as:

- * *appears*
- * *suggests*
- * *indicates.*

Softening or hedging verbs in sentences

*The results shown in Figure 1 **suggest** that stratified sampling by gender...*

*The evidence seems to **indicate** that the flow rate of NaOH does not significantly affect...*

*This result **appears** to demonstrate that the presence of flower galls at permanently-flooded sites can be accounted for by...*

Academic wording

Use full forms instead of contractions

Because scientific essays and reports are types of formal writing it is important not to use the informal short forms (contractions) you would use in your e-mails and letters to friends. For example, you should use:

- * **do not** instead of **don't**
- * **cannot** instead of **can't**
- * **will not** instead of **won't**.

Use nominalised phrasing

One important feature of formal scientific writing is the use of nominalisation, or the use of nouns rather than verbs. In the following pairs of sentences, the first sentence makes use of verbs and the second sentence relies on noun forms to a greater extent.

Examples

1. **Use of verbs:** *The gel **was set** in the oven and the excess water **was removed**. The lathanum oxide binding gel **was then taken** from the moulding and **stored** in MQ water.*

2. **Use of nominalisation:** *After **setting** in the oven, **removal** of excess water, and **disassembly** from the moulding, the lathanum oxide gel was stored in MQ water.*

1. **Use of verbs:** *In dialysis, nitrogenous wastes **are removed** from the body and electrolyte imbalances **are corrected**.*

2. **Use of nominalisation:** *Dialysis involves the **removal** of nitrogenous wastes from the body and the **correction** of electrolyte imbalances.*

1. **Use of verbs:** *When people **catch** too many fish, the coral pests **increase** and eventually **overrun** the coral colonies.*

2. **Use of nominalisation:** ***Overfishing** results in **increases** in pest numbers and the **overrunning** of coral colonies.*

Be sure and avoid writing subjectively

Students sometimes write using a ‘chatty’, informal or subjective style such as in the following example:

Subjective style

These results seem to be really quite good. The model fits very well with the data points as can be interpreted by the R^2 values of 0.32 shown in Table 1 above. But the method used to obtain the best values for a , b , and c was a little silly and time-consuming as it required putting lots of values into a changeable Excel spreadsheet over and over to try and get the lowest R^2 value, even though this is probably the only way to do it accurately. Also, this model can be used to extrapolate the PCB concentrations of fish of ages not measured in the study, but that's about it.

Although the scientific points made by this student may be correct, the form of expression is not appropriate for a formal scientific report. There are a number of ways in which this passage could be made more objective, but first it is important to think about whether to use a personal or impersonal style.

Personal or impersonal style. Which is better?

Should you use a personal or impersonal style? Until quite recently, text books on scientific writing advised students to use an impersonal style of writing rather than a personal style. An impersonal style uses:

- * the passive voice*
- * the third person rather than the first person (it is rather than I or we)*
- * things rather than people as subjects of sentences.*

However, overuse of the passive voice may mean that your writing is less precise, and it may lead to writing which is more difficult to read because it is less natural than the active voice.

Times are changing, and in some disciplines and sub-disciplines of science it is now quite acceptable to use the active voice, personal pronouns such as I and we, and to use people as subjects of sentences.

Examples of active and passive sentences

Active: *I observed the angle to be...*

Passive: *The angle was observed to be...*

Active: *The authors suggest...*

Passive: *It is suggested...*

Active: *We used a standard graphical representation to...*

Passive: *A standard graphical representation was used to...*

The active voice allows you to write short, punchy sentences. The passive appears more formal and considered and is more suitable for academic writing. Avoid mixing the two voices.

Examples of the first and third person pronouns

First person: *I found...*

Third person: *It was found that...*

First person: *I assumed that...*

Third person: *It was assumed that...*

If there is one stylistic area where scientific disciplines and journals vary widely, it is the use of first vs. third person constructions. Some disciplines and their journals (e.g., organismal biology and ecology) have moved away from a very strict adherence to the third person construction, and permit limited use of the first person in published papers. Other disciplines, especially the biomedical fields, still prefer the third person abeleling. Limit your use of first person construction (i.e., “*I (or we) undertook this study*”): usually it is most acceptable in the Introduction and Discussion sections, and then only to a limited extent. Use first person in the methods *sparingly* if at all, and avoid its use in the results.

Examples of persons or things as subjects

Person as subject: *I noticed...*

Thing as subject: *Analysis of the raw data indicated...*

Person as subject: *In this report I show...*

Thing as subject: *This report presents...*

Task 1. Find correct equivalents.

Title page	This is the section of the report which draws together the main issues. It should be expressed clearly and should not present any new information. You may wish to list your recommendations in a separate section or include them with the conclusions.
Acknowledgements	Present your findings in as simple a way as possible. The more complicated the information looks, the more difficult it will be to interpret. Graphs, charts and diagrams help your reader identify key results and break the flow of written text.
Contents	This is the section where you can analyse and interpret your results drawing from the information which you have collected, explaining its significance. Identify important issues and suggest explanations for your findings. Outline any problems encountered and try and present a balanced view.
Abstract or summary	You should include any help you have received in collecting the information for the report, for example staff in your department, support services or external companies.
Introduction	In this section you should state how you carried out your enquiry. What form did your enquiry take? Did you carry out interviews or questionnaires, how did you collect your data? What measurements did you make? How did you choose the subjects for your interviews?

Methodology	This should give the context and scope of the report and should include your terms of reference (what have you been asked to find out?) State your objectives clearly, define the limits of the report, outline the method of enquiry, give a brief general background to the subject of the report and indicate the proposed development.
Results or findings	This should be a short paragraph abeleding the main contents of the report. It should include a short statement of the main task, the methods used, conclusions reached and any recommendations to be made. The abstract or summary should be concise, informative and independent of the report. The summary may have more than one purpose: it reminds the reader what they have read but it is also useful to busy managers or professors who may not always read the full report. Write this section after you have written the main body of the report.
Discussion	It is important that you give precise details of ail the work by other authors which has been referred to within the report.
Conclusions and recommendations	It contains additional related information which is not essential to read but can be consulted if the reader wishes. However the interpretation of the report should not depend on this being read. You could include details of interview questions, statistical data, a glossary of terms, or other such information.
References	This should include the title of the report (which should give a precise indication of the subject matter), the author's name, module, course and the date.
Appendices	You should list ail the main sections of the report in sequence with the page numbers they begin on. If there are charts, diagrams or tables included in your report, these should be listed separately under a title such as 'List of Illustrations' together with the page numbers on which they appear.

Task 2. Check with your tutor to find out what your report should include and how it should be presented.

Task 3. Read the questions given below and try to find answers to these questions. At least it will help you to decide what to put in the report and what style to write it in:

Who is your audience?

Who are you writing for?

What do they know already?

What do they need to know?

What do they want to know?

Task 4. Draw up an outline structure for your report and set the work within a sensible time scale for completion by the given deadline. One common structure is based on the 4 P's; position, problem, possibilities, proposal. This means you outline the current position, describe the problem, examine the range of possibilities and decide on a proposal. Some of the most time-consuming parts of the process are collecting and selecting your information, and checking and revising your report.

- Clarify your terms of reference – what brief are you working to?
- Decide on the main sections of your report – what instructions have you been given?

Task 5. Illustration checklist.

All illustrations should be carefully presented to help convey your information.

- Are all your illustrations clearly labeled?
- Do they all have titles?
- Is the link between the text and diagram clear?
- Are the headings precise?
- Are the axes of graphs clearly labeled?
- Can tables be easily interpreted?
- Have you acknowledged all sources of help and obtained permission to reproduce copyright images?
- Have you numbered your illustrations and listed them in the Contents section?

- **Title page**

Does this include the:

Title

Author's name/

Module/course details?

- **Acknowledgements**

Have you acknowledged all sources of help?

- **Contents**

Have you listed all the main sections in sequence?

Have you included a list of illustrations?

Task 6. Use the Checklist which follows to check through your report before submitting it.

REPORT WRITING CHECKLIST

1. Title page

Does this include the:

Title?

Author's name?

Module/course details?

2. Acknowledgements

Have you acknowledged all sources of help?

3. Contents

Have you listed all the main sections in sequence?

Have you included a list of illustrations?

4. Abstract or summary

Does this state:

The main task?

The methods used?

The conclusions reached?

The recommendations made?

5. Introduction

Does this include:

Your terms of reference?

The limits of the report?

An outline of the method?

A brief background to the subject matter?

6. Methodology

Does this include:

The form your enquiry took?

The way you collected your data?

7. Reports and findings

Are your diagrams clear and simple?

Are they clearly labeled?

Do they relate closely to the text?

8. Discussion

Have you identified key issues?

Have you suggested explanations for your findings?

Have you outlined any problems encountered?

Have you presented a balanced view?

9. Conclusions and recommendations

Have you drawn together all of your main ideas?

Have you avoided any new information?

Are any recommendations clear and concise?

10. References

Have you listed all references?

Have you included all the necessary information for locating each reference?

Are your references accurate?

11. Appendices

Have you only included supporting information?

Does the reader need to read these sections?

12. Writing style

Have you used clear and concise language?

Are your sentences short and jargon free?

Are your paragraphs tightly focused?

Have you used the active or the passive voice?

2. Hints for Organizers of a Scientific Conference

by Reinhard Krause-Rehberg

2.1. Preparation of the Conference

- Have the webpage as early as possible online.
- Get the email address list from the last organizer. Ask for problematic guests.
- It is a good idea to have different conference email addresses to be announced

at the contact webpage of the conference, so that different problems can be handled by different colleagues.

- Ask early enough all participants whether they agree to the publication of the talk files (as pdf) on DVD. In case somebody does not agree, the abstract will be taken, or a weaker version without the problematic data can be supplied. This is an important intermediate step between the abstract volume and the conference volume, which is often delayed more than a year.

- Give the street address for the arrival for those who come by car. Many people use navigation systems nowadays.

- Give a time block diagram on the rear page of the abstract book.

- Don't have too expensive conference bags. People have a collection of them at home already. Give a chance to put somewhere the name of the owner, otherwise they all look the same and mixing up becomes possible.

- Never simply scan city maps and put them to the web. In some countries there are people searching the web to find unauthorized copies to get some money out.

- Give an emergency mobile phone number to the participants in the last email. Then, people can ask for help in case they really need this. In case you don't want to publish your mobile phone number, just give one of your phone numbers at your

office and redirect the incoming calls there to your mobile phone during the conference period.

- In the technical hints for preparing the talks, tell the people that they shall store the fonts in their PowerPoint files. This is an option in all versions of PowerPoint. In Office 2007 it is in the general options of the program. This avoids missing or wrong letters especially in equations, which are caused by equation programs because they often bring their own fonts, which then will not be found in the lecture hall PC. Pdf files are not so sensitive in this respect, but to be sure, one can store the letters as curves, then nothing should happen to the original looking.

2.2. Accommodation

- Give a list of available hotels near the conference venue including price information. The participants should register there by themselves.
- Try to get a special price at the closest hotels and arrange a code word (name of conference).
- For large conferences one shall try to hand over the responsibility to a travel agency. This will make the things for you much easier.
- Never try to handle the hotel accommodation by yourself. This will absorb you too much.
- Try to find a cheaper place for students (dormitory or something similar).
- In case a part of the accommodation is not in walking distance and a conference bus service is too expensive, organize two tickets a day for the local traffic and give further information (map, time schedule, possible lines).

2.3. Conference Venue

- There must be always somebody in the lecture room who knows the technique in detail.
 - He/she must be in the room early enough before a session starts to assist the speakers (Laptop, USB). He/she must...
 - ... must speak English.
 - ... must check all the technique in the beginning of a session.

- ... must know the emergency exit and must have a key, if the door is locked.
- ... must change the battery of laser pointer (a green one) and microphone in time (check manual for battery life).
- There must be a second laser pointer and maybe a second microphone (in a large room).
- On the PC used for presentation Office 2007 is needed. This is because the file format has changed. In case only Office 2003 or an older version is available, there are free viewer programs for the new formats pptx/pptm and docx at the Microsoft webpage.
- The newest Acrobat Reader should be installed.
- Allow own laptops of the speaker only when really necessary (for showing videos, animations or so). In case you have those laptops, it is a good idea to have a simple manual video switch for at least 4 VGA sources, so that 3 laptops can be adopted before a session. The testing and switching is then very fast.
- Another possibility is to use the second VGA input of the beamer and the switch at the beamer.
- Have power adaptors available for Japanese, American, European ... power plugs.
- In a large hall (> 100 people) you must have a microphone. Don't use one to be hold in the hand. Even worse are those to be fixed at the table or a stand.
- In a large room it is good to have 2...3 microphones for the discussion for people who are asking. You need then one extra person for each mike.
- In lecture room: some people prefer real pointers instead of laser pointers, if possible. Have one available.
- Test the size of the projection area. Go to the rear seats and use a normal-sized slight to test the readability. Very often, the size is too small for a large room.
- Be sure that the beamer is in a position where the projection area is just filled, not too far away.
- The room illumination must be reduced. Moreover, the sun may disturb strongly. Check, whether there are suitable curtains, or something similar.
- For the discussion, a blackboard, a whiteboard or a paperboard with pencils is needed.
- Nowadays there are easy-to-use remote control units with built-in laser pointer

for PowerPoint and pdf presentations. This is standard equipment for lecture halls, have one available.

- In the lecture hall there must be a large clock at the wall which can be seen by the speaker and the chairmen. A hand-bell is very useful to open the sessions and call the people into the room.

- Ask the speakers strictly to put their files before the session to the presentation PC or ask them to try their laptops in advance to the session.

- In a large lecture hall it is possible to have a second beamer or overhead to show messages of the organizers to begin or end of a session parallel to the session. Don't leave the message there for the whole time. Switch it off after some time.

- In case you have parallel sessions, mark the rooms clearly according to the sessions. Put a time schedule of each session large enough at both doors. In this case, the time schedule must be strictly respected by the chairmen's for those who switch between sessions. In case a speaker is missing, you must extend the discussion of the talk before, or make a short break.

- In the last time a bad habit occurs: sometimes almost all listeners opened there laptops and start to do some Email/Internet activities during the talks. These participants really disturb those sitting nearby and try to listen. And it is a strange feeling for the speaker. To reduce this, one could switch off the WIFI access points for the lecture rooms, if technically possible, or give it a password which is not published. In case the email room is very close, this is not possible, since there WIFI access is absolutely necessary.

- Think about having a video stream online of the talks. This would allow the colleagues who were not able to come to follow the program.

- Organize a conference photo! A broad stair a good place. But also on an even area it is possible when the photographer is able to be in first floor level (long ladder or 1st floor of a building).

Lectures

Instruct the chairman's to strictly keep the time. This is a difficult thing but it is possible.

In program: announce the time of the talk and in addition the time of the discussion, e.g. 20+10 min.

Chairman's shall be careful with the discussion time, not too long overtime discussion.

Email / Internet access

- You need about 3 desktop PC's for email and word processing per 50 participants.
- The PC's need an English operating system.
- They should be available all the day in an extra room.
- Put the access information (user and password) close to the computer when a reset is necessary. This should be a guest account with no rights for installation of programs.
- Many people come with their own laptops. So you should have WIFI installed. The WIFI internet access should be unencrypted (no password). This is important to avoid problems which usually occur with older laptops. The problem: older laptops often have WEP encryption only and cannot be used in the current WAP or WAP(2) encryption modes. In case encryption is absolutely necessary, use WEP encryption and put the access ID/PW clearly at the wall.
- In addition, about 3...5 LAN lines should be available for those who don't want to use WIFI or who have trouble with this.
- Word and PowerPoint should be installed in an English version.
- In case the keyboard is very different from an English one (e.g. the French one), have English keyboards installed.
- A printer should be available in the network or at least one PC should be equipped with a direct printer.

Breaks

Coffee break:

Not less than 20 min.

At least 2 coffee points / 50 persons.

Have some cake or cookies.

Have at least coffee, tea, water, and juice.

Lunch break: Time at least 90 min, 60 min are usually not enough.

Lunch counter must be fast enough, check this before.

Poster

- Supply enough material to fix the posters to the poster walls. Usually, many people will fix their posters at the same time.
- It is always a good idea to have two poster sessions. Otherwise people having a poster are not able to see the other posters.
- Give the correct format of the poster walls already in the webpage. In case you don't know this information in time, say it is portrait format. Then it will fit always.

Name tags

- Print there only what is necessary. The symbol of the conference is enough; or give the name of the conference in a small font in light grey, or so.
- The name is most important and should be prominent, thus as large as possible in black. Don't minimize the contrast by using unfavorable color combinations.
- Give the affiliation in a similar font under the name using a bit smaller font.
- Do not use academic titles at all.
- Keep in mind that older colleagues are often farsighted and need at a small distance glasses when the font is too small. And when taking their glasses they claim that they don't know the person in front.

2.4. After the Conference

- The deadline for the conference proceedings should be not later than the last day of the conference. When you can manage to have the manuscripts in already at the beginning of the conference, you have the chance to have most of the referee reports done at the end of the conference. It is easy to remember the referees during the conference.
- Otherwise allow the referees at least 3...4 weeks for their reports. Often people do holiday trips just after a conference. A shorter time is not realistic.
- In case you organize a small workshop, a CD with the conference contributions is often the best solution for the publication of the conference results.
- In case you plan a proceeding volume, then contact the publisher about one year before the conference.
- Make the list of all participants including the email addresses available to all participants, but don't put the list to the web. Send a mail with a file attached.

3. Conference management by M.F. Cooksey

EAS welcomes you to Rotterdam for Aquaculture Europe 2015. Hi, After a hugely successful AE2014 event in Donostia -San Sebastian last October, EAS is proud to welcome you to join us from October 20-23 in the Dutch city of Rotterdam.

You'll be amazed by the welcome of this modern port city and what it has to offer, and you will be able to combine a stay in Amsterdam and aquaculture tours before coming out to Rotterdam to join the conference.

The conference this year is entitled "Aquaculture, Nature and Society" and will focus on the role and contribution of aquaculture to the management of natural resources and its importance in society through the provision of high quality, nutritious and healthy food.

See the AE2015 BROCHURE



3.1. Aquaculture Europe



Aquaculture, Nature and Society

International Conference

Organized by
the European
Aquaculture Society
in cooperation with
IMARES Wageningen
UR

Rotterdam,
Netherlands

European aquaculture is an important economic activity in many coastal and continental areas and provides jobs in rural areas. Its full potential has not, however, been developed to date although European and national policy is looking to address this and provide the framework for sustainable growth across this diverse sector.

Aquaculture Europe 2015 will focus on the role and contribution of aquaculture to the management of natural resources and its importance in society through the provision of high quality, nutritious and healthy food. These are the main thematic areas that will be addressed during the plenary sessions. European and national research is providing highly innovative and integrated solutions to support development and the outputs of this research will be presented in the AE2015 parallel sessions that cover the full scope of European aquaculture and comprise submitted oral and poster presentations.

will also feature an international trade exhibition, farmers' days (focusing on RAS and shellfish culture), student sessions and activities, satellite workshops of EU projects and initiatives and updates on EU research.

This page is the gateway to the online management of the conference. To:

- **Submit an abstract for the conference**
- **Purchase exhibition space for the trade show**

Register and pay online select the menu option from the menu on the left.

3.2. Theme and location

theme & location



European aquaculture is an important economic activity in many coastal and continental areas and provides jobs in rural areas. Its full potential has not, however, been developed to date although European and national policy is looking to address this and provide the framework for sustainable growth across this diverse sector.

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AE2015 Thematic Plenary Sessions

Plenary sessions take place each morning of AE2015 with invited speakers who set the scene and 'open the debate' for the parallel sessions of contributed presentations in both oral and poster format.

- **New approaches to production:** innovation is at the core of sustainable aquaculture development, but so is the contribution of aquaculture to maintain and enhance our natural capital. This plenary session will highlight the most recent developments in the way we produce our European seafood - balancing the 'precision farming' concept with the provision of eco-services and being a key element of conservation in local areas.
- **Demonstrating our sustainability credentials:** Aquaculture producers have several tools available to them to demonstrate their economic, environmental and social responsibility. This plenary will focus on how aquaculture practices can provide that demonstration with an insight into the stakeholder process to develop standards and the environmental, animal welfare, social and ethical elements of these.
- **Adapting to consumer preferences:** Consumers want healthy, tasty and sustainably produced seafood at a fair price. This plenary session will provide a retailer perspective on how (European) seafood is a source of superior value to consumers by exploring product image, consumer perception and sourcing strategies that are in line with customer expectations.

AE2015 will take place at the De Doelen Congress Centre in Rotterdam, located in the centre of the city and only 5 minutes walk from Rotterdam Central station and close to all of the selected conference hotels. The city of Rotterdam is easily accessible via the international airport of Schiphol (25 minutes by train) or the Rotterdam The Hague Airport (EU flights). For neighbouring countries, Rotterdam Central Station is linked by international high-speed trains (Thalys from Paris 21hrs, Brussels 11hrs).



Aquaculture Europe – the annual meeting of the European Aquaculture Society

3.3. Conference sessions and other events

conference sessions & other events



AE2015 Parallel sessions (for submission of abstracts)

In addition to the thematic sessions, AE2015 also includes parallel and poster sessions. The following is a list of the sessions open for submission of abstracts. This list could be subject to change.

PS1 Environmental monitoring & management	PS21 Fish welfare
PS2 Climate change: impacts and mitigation in aquaculture, acidification	PS22 Spatial planning of aquaculture sites
PS3 Ecosystem services	PS23 Predator management
PS4 Re-stocking & recreational fisheries	PS24 Laboratory models (e.g. Zebrafish and others)
PS5 Production in protected areas: how to combine exploitation and protection	PS25 Progress in eel reproduction
PS6 Prevention of escapes	PS26 Shellfish production and diversification
PS7 Nutrition: Requirements	PS27 Seaweeds as food, feed and economic activity
PS8 Nutrition: Alternative feed ingredients	PS28 Aquaponics
PS9 Advanced research initiatives for nutrition and aquaculture (EU ABRAINA project)	PS29 Knowledge management, transfer & extension networks
PS10 Nutrition: Focus on insect meals	PS30 Governance, policy and strategic planning
PS11 Advances in hatchery technologies	PS31 EAS Student Group Workshop
PS12 Advances in close containment technologies at sea and RAS	PS32 EU Forum
PS13 Offshore production	PS33 Selective breeding for efficient and sustainable aquaculture
PS14 Anti-fouling strategies	PS34 Genomic tools and methods and their application
PS15 Multi-species systems and IMTA	PS35 Swimming to optimize fish production
PS16 Product quality, processing, biosecurity and value addition	PS36 Metabolomics in aquaculture
PS17 Labelling, certification, traceability and logistics	PS37 New/emerging finfish species (EU DIVERSIFY).
PS18 Aquaculture image, consumer studies and perception	PS38 Progress, lessons learned and stakeholder involvement in shellfish restoration
PS19 Disease prevention, treatment and management	PS39 Goods and services of shellfish reefs and artificial reefs
PS20 Diseases - description, mapping and epidemiology	PS40 Development, Welfare and Poverty Alleviation
	PS 41 Organic Aquaculture

Two special 'Farmers' Days' & industry oriented workshops

- > Two industry-oriented events, based on the conference theme and with special emphasis on the situation in The Netherlands will be organised in cooperation with our industry partners. One will be on fish culture systems and the other on shellfish issues.
- > A series of special workshops organised by EU-funded projects and other relevant initiatives will be organised in the exhibition area and specifically targeted towards exhibitors and trade show visitors.

European associations and EU Project Consortia will also have a forum to hold meetings

AE2015 Student Forum

- > A special forum for students attending AE2015 to enable networking and exchange of ideas. The forum will have a dedicated programme and include a special student reception. Students receive the full registration package plus the student reception. To qualify for the student rate, a copy of your student I.D. is required.

EAS Thematic Groups

- > The EAS thematic groups will organise special sessions and/or workshops within AE2015. More information will be posted at the AE2015 page on the EAS web site.

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3.4. Call for papers – deadline

call for papers - deadline: May 1, 2015



Aquaculture Europe 2015 encourages the submission of high quality oral and poster presentations. We strongly encourage authors to consider both presentation options, as poster sessions are an integral part of the programme. Papers submitted for "oral presentations only" may not be accepted as oral presentations due to the limited number of available time slots. All abstracts must be in English - the official language of the conference.

Each oral presenter will be entitled to no more than 15 minutes for a presentation, plus 5 minutes for questions. Authors of studies involving proprietary products or formulations should present this information in workshops or the trade show. Oral presentations should use Power Point. Overhead and slide projectors and video players will not be available.

All presenters are required to pay their own registration, accommodation and travel expenses. Aquaculture Europe can not subsidize registration fees, travel or hotel costs.

No Abstract Book will be printed - a compilation will be provided online and in a mobile phone app to registered delegates.

Posters have a prominent place in Aquaculture Europe meetings:

- Presenters that send a PDF or power point version of their poster four weeks before the conference will have their poster reviewed within the appropriate oral session.
- Special poster viewing with authors present is provided during the happy hours.
- Besides this, posters will be easily accessible during the lunch breaks.
- In the programme book, special mention will be made in the oral session lists of where the relevant posters can be found.
- Prizes will be awarded during the wrap-up session for Best Poster and Best Student Poster.

Instructions for preparation of 2-page abstracts

Abstract Format - Please refer to the sample.

1. Title of paper: type in bold in upper-case letters (= full capitals) and the scientific names in the title in italics; leave two lines between title and author(s).
2. Author(s): the first letters of both first and last names must be capitalised; leave one line between author(s) and affiliation. Use * after the presenting author.
3. Address and Email: (in point 9) leave two lines between affiliation and text. Only the e-mail address of the contact person should be provided.
4. Headings of sections: type bold (not in full caps); space above should be two single lines for the first section header and one and a half lines above all the other section headers; space below section header should be half a line (or 6pt) only.
5. Text: typing must be single spaced; space between paragraphs can be half a line (or 6pt); paragraphs should begin flush with the left margin of the text, not indented.
6. Maximum length: two pages
7. Page size: standard A4 paper (210mmX297mm) (portrait)
8. Margins: left margin=4.2cm; right margin=4.2cm; margin top=2cm; margin bottom=4cm.
9. Font: Times New Roman 10 point
10. Photos, Figures and Tables: should be included if relevant. They should be reduced to the appropriate size to fit on the page and should be clearly readable.

Full guidelines can be found at www.easonline.org



Please submit your abstract online: www.easonline.org

If you are unable to submit online, please contact the Aquaculture Europe conference manager at worldaqua@aol.com or fax +1 718 751 5003

Aquaculture Europe – the annual meeting of the European Aquaculture Society

3.5. Trade exhibition and farmers days

trade exhibition and farmers' days



A major international trade exhibition especially for AE2015

Aquaculture Europe 2015 will feature a special international trade exhibition, organised by the European Aquaculture Society, where Dutch and international companies will present their latest products and services for aquaculture.

Both Standard and Corner booths will be available and each booth is 6m² (2x3m) and features walls, carpet, two chairs and one table, spotlights, one power outlet, fascia identification sign and two free places for the conference.

For booth information, reservation and advertising opportunities, please contact Mario Stael, AE2015 European Exhibit Sales Manager.
Tel/fax.: 32 9 233 4912
E-mail: mario@marevent.com
www.marevent.com

Tuesday October 20	Wednesday October 21	Thursday October 22	Friday October 23
	Move in 08.00-10.00		
Move in noon-18.00	Trade show open 10.00-19.00	Trade show open 10.00-19.00	Trade show open 10.00-16.30
Welcome 18.30-20.00	Happy hour 17.30-19.00	Happy hour 17.30-19.00 President's reception 19.00-23.00	Move out 16.30-19.00

A series of special farmers' day programmes will be organised for the two principal sectors of Dutch aquaculture - land-based recirculation systems and shellfish - by the producer organisations that are part of the AE2015 Steering Committee. These sessions will bring producers to AE2015 and will have a special emphasis on industry issues, while also providing time for them to visit the trade exhibition.

Workshops organised by EU-funded projects and other relevant initiatives will also take place in the exhibition area and specifically targeted towards exhibitors and trade show visitors.



AE2015 also provides SPONSORSHIP OPPORTUNITIES to suit all budgets.
please contact Mario at mario@marevent.com for more

Your Aquaculture Europe conference registration includes:

- Admission to all conference sessions and to the trade exhibition
- Delegates kit
- Access to online abstracts and mobile phone app
- Refreshment breaks
- Admission to Welcome & Presidents' receptions
- Students receive the full registration package. To qualify for the student rate, a copy of your student I.D. is required

Only pre-registered delegates are guaranteed delegates kit.
Spouse registration does not include this item.

Aquaculture Europe – the annual meeting of the European Aquaculture Society

3.6. Registration form

registration form side 1



SAVE TIME – REGISTER ONLINE: www.easonline.org

- Register online
- If this is not possible, return both sides of this form with payment to the address on the next page
- Use one form per person. Please copy this form for additional people
- Registration can be faxed (fax: +1-760-751-5003) if paying by credit card (fax both sides)
- Cancelled registrations will receive a refund minus 20% handling. Cancellations must be in writing and be received by September 1, 2015
- No refunds will be made for cancellations received after September 1st, 2015
- Refunds will be issued after the conference.

PLEASE PRINT CLEARLY OR TYPE ALL REQUESTED INFORMATION

BADGE INFORMATION: (As you want your name badge to read - no title please)

First Name _____ Surname (Family Name) _____

Company or Institution _____
(Limited to 40 letters & spaces)

City _____ State/Prov _____ Country _____

MAILING INFORMATION: Email _____

Address _____

City _____ State/Prov _____ Postal Code _____ Country _____

Phone _____ Fax _____ Title: (circle one) Dr. Mr. Ms. Mrs.
Include country code and city code

Type of registration	Register by July 15, 2015	Register by Sep 15, 2015	After Sep 15, 2015	* To qualify for Member Rate you must be an EAS or WAS member in good standing (please tick overleaf).
EAS Member Rate*	€ 395	€ 445	€ 495	<p>Trade show access is included in the full conference registration rate</p> <p>TOTAL REGISTRATION FEE</p> <p>€ _____</p>
EAS Student Member Rate* (Include copy of Student ID)	€ 125	€ 170	€ 225	
Non-Member rate	€ 495	€ 545	€ 595	
Student non-member rate (Include copy of Student ID)	€ 175	€ 225	€ 275	
Spouse rate Name _____	€ 225	€ 275	€ 325	

Trade show: free for registered delegates of the Aquaculture Europe 2015 conference or:

Trade Show Pass Only - valid whole period - and includes entrance to the Farmers' Days : €50 Available on-site

Membership dues - enter amount from membership application on other side if applicable € _____

Do not post registration after August 1st, or fax after September 30th.
After September 30th bring this form with you to register onsite.

TOTAL AMOUNT € _____

Registration confirmation and receipt will be emailed after processing.

Aquaculture Europe – the annual meeting of the European Aquaculture Society

registration form side 2



PAYMENT METHOD: all fees must be paid to the order of Aquaculture Europe 2015 without charges for the beneficiary.

☐ Visa ☐ Mastercard ☐ Access ☐ American Express

Card # _____ Expiry Date _____ CVC code (back of card) _____

Name on Card _____

Card Billing Address _____ City _____ Zip _____ Country _____

Date _____ Signature _____

For bank transfer details, contact: worldaqua@aol.com

If you wish to pay by cheque, please contact Conference Director John Cooksey beforehand. A surcharge of €25 will be applied and this should be added to the final amount.

Name _____

Membership: please check the box(es) for which you are a current member. Membership in any of these associations qualifies you for the Member Rate on the registration fees. You can join EAS before registering to qualify for the Member Rate.

☐ European Aquaculture Society ☐ World Aquaculture Society

EAS MEMBERSHIP APPLICATION ☐ New Application ☐ Renewal

Join the EUROPEAN AQUACULTURE SOCIETY (EAS)!



EAS MEMBERSHIP includes automatic receipt of the Aquaculture Europe Magazine and newsletter, online access to Aquaculture International, online networking, annual membership list, reductions on international aquaculture press and websites, as well as BIG REDUCTIONS ON REGISTRATION for EAS and WAS co-organised meetings.

EAS membership runs from January to December each year. New members joining at any time of the year receive all material for the calendar year

EAS Membership Categories

Standard Reduced Rate*

<input type="checkbox"/> EAS Individual Membership	€ 90	€ 60
<input type="checkbox"/> EAS Institutional Membership	€ 300	€ 200
<input type="checkbox"/> EAS Life Membership **	€ 720	-

(E-membership of EAS is also available, but does NOT allow for member rate for conference registration)

Please add Administration Fee to the basic rates above: + € 7,50

Total Amount for EAS Membership: € _____

Please enter this amount under 'Membership dues' section on opposite side of form.

* Individuals of aged 30 or under (proof of age required). Also for retired persons (certification of retired status required) and individuals residing in European and non-European Mediterranean countries with Gross National Income (GNI) lower than US\$ 10,000 per capita. These countries are Albania, Algeria, Belarus, Bosnia and Herzegovina, Bulgaria, Egypt, Iran, Lebanon, Macedonia, Moldova, Montenegro, Romania, Slovakia, Serbia, Syria, Tunisia and Ukraine.

** Institutes if based in one of the above mentioned countries.

** Life membership offers the general EAS benefits for full lifetime duration.

Join online at <http://www.easonline.org/join-eas/join-eas!>

Aquaculture Europe – the annual meeting of the European Aquaculture Society

3.7. General information

general information



European Aquaculture Society (EAS)



EAS is an international non-profit association dedicated to the promotion of contacts and the exchange of information amongst all involved or interested in aquaculture in Europe. www.easonline.org

IMARES & AFI Wageningen UR



IMARES (Institute for Marine Resources and Ecosystem Studies) is the Netherlands research institute established to provide the scientific support that is essential for developing policies and innovation in respect of the marine environment, fishery activities, aquaculture and the maritime sector.

<http://www.wageningenur.nl/en/Expertise-Services/Research-Institutes/About-IMARES.htm>

AFI: Aquaculture and Fisheries Department of Wageningen UR: It is our mission to be leading in academic research and education on sustainable Aquaculture and Fisheries, with a focus on society relevant questions and on the interactions between aquatic organisms and their environment

<http://www.wageningenur.nl/en/Expertise-Services/Chair-groups/Animal-Sciences/Aquaculture-and-Fisheries.htm>

AE2015 Steering Committee

Chair: Johan Verreth, Wageningen UR, NL

Members: Jaap Holsteyn, NL, Arjen Roem, Nutreco, NL and Marc Vandeputte, INRA, FR.

AE2015 Programme Co-Chairs

Aad Smaal, IMARES Wageningen UR, NL and Catarina Martins, Marine Harvest, NO.

AE 2015 Local Organising Committee

Jeroen Wijsman, IMARES Wageningen UR, Henrice Jansen, IMARES Wageningen UR, Rob Van de Ven, Landling, Jouke Heringa, University of Applied Sciences, Vtassingen and Joyce Wittelaar, Rotterdam Partners.

Special hotel rates for you

We have arranged a great selection of hotels in Rotterdam with very good rates. More at www.easonline.org

Farm tours

Visits to aquaculture facilities in Holland will be organised by the Local Organising Committee.

Tentative schedule

Tuesday October 20th - Registration day

Registration open	noon - 18.00
Exhibitor move in	08.00 - 18.00
EAS Board meeting	09.00 - 17.00
Welcome drink (city hall)	18.30 - 20.00

Wednesday October 21st

Registration open	07.30 - 18.00
Opening ceremony/Plenary 1	08.30 - 10.00
Coffee Break	10.00 - 10.30
Trade Show open	10.00 - 19.00
Parallel Sessions	10.30 - 12.50
Lunch (on your own)/ Posters	12.50 - 14.30
Parallel Sessions	14.30 - 17.30
Poster Session Happy Hour	17.30 - 19.00
EAS General Assembly	17.30 - 18.30
Student Reception	19.00 - 21.00

Thursday October 22nd

Registration open	08.00 - 17.30
Plenary 2	09.00 - 09.45
Panel discussion	09.45 - 10.15
Coffee Break	10.15 - 10.45
Trade Show open	10.00 - 19.00
RAS Industry Forum	11.00 - 17.00
Parallel Sessions	10.45 - 12.45
Lunch (on your own)/ Posters	12.45 - 14.10
Parallel Sessions	14.10 - 17.30
Poster Session Happy Hour	17.30 - 19.00
Presidents Reception (buffet dinner)	19.00 - 23.00

Friday October 23rd

Registration open	08.00 - 15.30
Plenary 3	09.00 - 09.45
Panel discussion	09.45 - 10.15
Coffee Break	10.15 - 10.45
Trade Show open	10.00 - 16.30
Shellfish Industry Forum	11.00 - 16.30
Parallel Sessions	10.45 - 12.45
Lunch (on your own)/ Posters	12.45 - 14.10
Parallel Sessions	14.10 - 16.30
Wrap up and poster awards	16.30 - 17.30

AE2015 contacts

Conference:
ae2015@aquaculture.cc
Registration:
worldaqua@aol.com
Booth sales:
mario@marevent.com



Aquaculture Europe – the annual meeting of the European Aquaculture Society

Dear Aquaculture Expert, Find below more information on the upcoming aquaculture events worldwide gathering academics and professionals in the Aquaculture Industry. New events are MEAF15 in Dubai and the Aquaforum just prior to the World Aquaculture 15 event in Jeju. The European event is in Rotterdam this year and we re happy to jointly organize the Latin American event with Fenacam in Fortaleza, Brazil. Hope seeing you at one of this events.

1. Middle East Aquaculture Forum (MEAF) - Dubai 5-6 April* With over 100 abstracts received and more than 30 sponsors confirmed, the first edition of the Middle East Aquaculture Forum, Dubai, 5-6 April promises to be an exciting platform for Middle East Aquaculture experts. "Towards Sustainable Aquaculture in the Middle East" will be the theme of this first edition, which will focus on vital industry issues affecting the key Middle Eastern aquaculture producing countries. DWTC, Dubai, April 5-6 – www.meaf.ae<<http://www.marevent.com/lists/lt.php?id=bUoKBF4AAQgIGA4OHggBCAU%3D>> Plenary speaker Ahmad Al Ballaa (MD of National Aquaculture Group and Chairman, Saudi Aquaculture Society): "Aquaculture has a pivotal role to play in global food future. Conservative estimates indicate that output from aquaculture must at least double to meet the demand for aquatic protein by 2050. With a current population of more than 400 million, the Middle East region has an increasingly important role to play in this future, on both the demand and the supply side. In order to meet that future opportunity, we must however develop aquaculture responsibly. Contributions at MEAF from world renowned experts and local farmers on their hard earned lessons in issues such as rearing practices, disease management, diversification and markets will provide valuable information which will dramatically shorten the costly learning curve for new ventures in the region. This forum will be the first of many such meetings that will offer a important and timely opportunity for researchers, governments and investors to jointly develop a roadmap for sustainable aquaculture in the region.

MEAF15, the forum where Middle East Aquaculture Experts will discuss the future of sustainable aquaculture in the Middle East, will include presentations on the following topics:

- Nutrition: Dr *Albert Tacon* will give a plenary presentation on ‘Future feeds for a growing aquaculture sector in a hungry world’, with *Dr Muhammed Alsaady* from Arasco feed company delivering the keynote presentation of the nutrition session.

- Industry: *Eng. Ahmad Al Ballaa* will give a plenary presentation on the first day of the event.

- Synbiotics and probiotics: *Prof. Einar Ringo* will give the keynote presentation showing the latest results in this field.

- Outlook of Aquaculture in the Region: latest updates will be provided by *Dr Haydar Alsahtout*.

- *Dr Farshad Shischensian* (President Asia Pacific Chapter of the World Aquaculture Society) will talk about: “The status of shrimp farming and new advance systems in Asia”.

- *Dr Sherif Sadek* will deliver a talk on “The concept of integration of aquaculture and agriculture in the Middle East”. This presentation will focus on the culture of various species using fresh ground water (tilapia/catfish/carp/freshwater prawn) and/or brackishwater (red tilapia/blue tilapia/seabream/seabass/shrimp). The Middle East Aquaculture Forum, Dubai, 5-6 April 2015 will be hosting workshops, industry presentations and an exhibition for aquaculture suppliers and producers and is sponsored by the European Aquaculture Society (EAS) and the World Aquaculture Society (WAS), with the Arab Aquaculture Society (AAS), the Pakistani Aquaculture Society (PAS) and the Saudi Arab Aquaculture Society (SAAS) as affiliate sponsors. All these societies are welcome to hold their annual meeting at MEAF15 and invite all their members to Dubai to join this unique forum.

For regular programme updates or more info on sponsorship packages, please contact: info@meaf.ae. For more info on the trade show: Mario@marevent.com.

In the framework of the Middle East Aquaculture Forum, a separate Aquafeed Workshop will be organized on 7 April.

Aqua Feed Production Workshop, Dubai, DWTC, 7 April 2015

Organizer: Dr. Mian N. Riaz, Head –Extrusion Technology Program.

Food Protein R&D Center, Texas A&M University System, College Station, Texas, USA./Please register for this separate workshop by contacting: info@meaf.ae./Looking forward to seeing you in Dubai at this exciting Forum. Middle East Aquaculture Forum Secretariat – *www.meaf.ae*

Keynotes: Prof. Alaa El Dahhar Arab Aquaculture Society - Mechanisms of activating marine aquaculture in the Arab region ; constraints and solutions Prof. Einar Ringo Application of dietary supplements (synbiotics and probiotics in combination with plant products and β -glucans) in aquaculture. Haydar Alsahtout An outlook on the Resources, Strategic Potentials, and Investment Opportunities of the Aquaculture and Algaculture Industries in the ME Dr Mohammed Alsaady Research director Arasco Melba Reantaso FAO Aquaculture Health department Dr Sherif Sadek The concept of integration of aquaculture and agriculture in middle east. RECOFI FAO session Included in health session

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Навчально-методичне видання

Кот Т. Ю., Вдовенко Н. М.

Правовий та економічний аспект написання наукових робіт:
методичні вказівки для майбутніх науковців

За авторською редакцією

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тел.: 527-81-55



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