



AUSTRALIAN AND NEW ZEALAND COLLEGE OF VETERINARY SCIENTISTS

MEMBERSHIP GUIDELINES

Veterinary Microbiology and Microbial Diseases

ELIGIBILITY REQUIREMENTS OF CANDIDATE

The candidate must meet the eligibility prerequisites for Membership outlined in the *Membership Candidate Handbook*.

OBJECTIVES

To demonstrate that the candidate has acquired a significant level of postgraduate knowledge and skill in the field of Veterinary Microbiology and Microbial Diseases, and is able to give sound advice in this field to veterinary colleagues.

LEARNING OUTCOMES

- The candidate will be expected to have a **sound**¹ knowledge of:
 - The bacterial, viral and mycological diseases of companion and commercial animals, including poultry and commercially farmed aquatic species that occur in Australia and New Zealand, and of the major exotic microbial animal diseases.
 - Diagnostic procedures used for the investigation of microbial disease, including:
 - Routine laboratory procedures and the principles of laboratory safety, sterilisation, aseptic technique, and methods of microbial preservation. *Microbial biochemical profiles or cultural characteristics need not be committed to memory.*
 - Immunodiagnosis, especially serological techniques used in major disease control programs.
 - Principles of treatment, control and prevention of microbial diseases.
 - Microbial zoonoses, including the micro-organisms of companion and commercial animals that may infect humans, the Public Health aspects of microbial zoonotic diseases, and the epidemiology control of these zoonoses.

¹Knowledge levels:

Detailed knowledge — candidates must be able to demonstrate an in-depth knowledge of the topic including differing points of view and published literature. The highest level of knowledge.

Sound knowledge — candidate must know all of the principles of the topic including some of the finer detail, and be able to identify areas where opinions may diverge. A middle level of knowledge.

Basic knowledge — candidate must know the main points of the topic and the core literature

- The candidate will be expected to **be able to**:
 - Microbiologically examine tissue, faeces, milk or urine samples from companion or commercial animals using standard techniques.
 - Apply basic microbiological knowledge and, using standard identification keys and texts, identify micro-organisms in the common companion and commercial animals.
 - Explain, using examples, the role of epidemiological models in predicting outbreaks of, and controlling, microbial disease
 - Provide, to the veterinary profession or public, information and advice on microbial infections in domestic animals, including poultry and caged birds, using concise clear communication in an appropriate medium

EXAMINATIONS

The Membership examination has **two (2) sections**, the **Written** and **Practical/Oral**, with each section worth 50% of the overall grade.

The **Written** consists of **two (2) parts**:

1. Written Paper 1 (2 hours – 50%)

Written Paper 1 assesses knowledge of General Pathobiology, including immunology and disease mechanisms associated with microorganisms. The candidate should be able give examples of the application of the principles of pathobiology to specific microbial diseases. The candidate should be aware of recent advances in pathobiology (as covered in recent review articles). There is some choice in this examination.

2. Written Paper 2 (2 hours – 50%)

Written Paper 2 assesses knowledge of Veterinary Microbiology and Microbiological Diseases. There is considerable choice in this paper.

The **Practical/Oral** consists of **two (2) parts**:

1. Practical (2 hours - 70%)

Practical assesses the ability of the candidate to examine microscopic smears and report on the findings; to assess culture plates of bacteria and fungi and tissue cultures of viruses and report on the findings; to assess the results of immunodiagnostic tests and report on the findings. The candidate may be required to evaluate photographs and projected images.

2. Oral (1 hour - 30%)

*Oral provides the candidate with a further opportunity to demonstrate their knowledge of Microbiology and Microbial Diseases. Follow-up matters from the **Written** and other parts of the **Practical/Oral** should not occupy more than 25% of **Oral**.*

RECOMMENDED RESOURCES (BOOKS, JOURNALS, WEB SITES)

Candidates are expected to read widely, paying particular attention to areas not part of their normal work experiences.

The following list of books and journals is intended as a guide to the scope of references candidates will use. Candidates should be guided by their mentors. The list is not comprehensive and is not intended to indicate the content of the examination.

It should be noted that many text books have a North American focus and may not accurately reflect what is seen in Australia and New Zealand. Good veterinary microbiology resources are often found in medical journals and web sites.

Books

- Quinn P J, Markey B K, Carter M E, Donnelly W J, Leonard F C. (2002) *Veterinary Microbiology and Microbial Diseases*. Blackwell,
- Hirsh D C, Zee Y C (1999) *Veterinary Microbiology*. 2nd edition. Blackwell.
- Murphy FA, Gibbs EPJ, Horzinek MC, Studdert MJ (1999) *Veterinary Virology*. 3rd edition. Academic Press San Diego
- Carter GR, Changappa MM, Roberts AW (1995) *Essentials of Veterinary Microbiology*. 5th edition. Williams and Wilkins Baltimore.
- Prescott JF, Baggot JD, Walker (2000) *Antimicrobial Therapy in Veterinary Medicine* 3rd Edition Iowa State University Press, Ames.
- Quinn PJ, Carter, ME, Markey B, Carter GR (1994) *Clinical Veterinary Microbiology* Mosby, Edinburgh, Harcourt Publishers Ltd.
- Buxton A, Fraser G (1977) *Animal Microbiology* Blackwell Scientific Publications, Oxford.
- Cowan ST (1974) *Cowan and Steel's Manual for the Identification of Medical Bacteria* 2nd Edition. Cambridge University Press, London.
- Frey D, Oldfield RJ, Bridger RC ((1979) *A Colour Atlas of Pathogenic Fungi* Wolfe Medical Publications Ltd, London.
- Koneman EW, Roberts GD (1985) *Practical Laboratory Mycology* 3rd Edition. Williams & Wilkins, Baltimore.
- Hungerford LL, Smith AR, Campbell CL (1998) *Veterinary Mycology Laboratory Manual*. Iowa State University Press
- Animal Health in Australia, Australian Bureau Animal Health, Department of Primary Industry:
 Volume 1 (1981) – Viral Diseases of Farm Livestock by WIB Beveridge
 Volume 4 (1983) – Bacterial Diseases of Cattle, Sheep and Goats by WIB Beveridge
 Volume 6 (1985) – Bacterial and Fungal Diseases of Pigs by JR Buddle
 Volume 7 (1985) – Viral, Bacterial and Fungal Diseases of Poultry by WIB Beveridge, L Hart
 Corner LA, Bagust TJ (eds) *Australian Standard Diagnostic Techniques for Animal Diseases*. Standing Committee on Agriculture and Resource Management. CSIRO Publications
- Stevenson WJ, Hughes KL (1980) *Synopsis of Zoonoses in Australia*. Commonwealth Department of Health.
- A Hocking (ed) (2003) – *Foodborne Microorganisms of Public Health Significance*. 6th edition. AIFST Inc NSW Branch Food Microbiology Group
- Murray PR, Baron EJ, Pfaller MA, Tenover FC, Tenover RH (1999) *Manual of Clinical Microbiology* 7th Edition. ASM Press, Washington DC
- Canfield P and Martin P. (1998) *Veterinary Cytology*. Post Graduate Foundation, University of Sydney, Sydney.
- Geering WA, Forman AJ, Nunn MJ (1995) *Exotic Diseases of Animals. A Field Guide for Australian Veterinarians*. Australian Government Publishing Service, Canberra.
- Cotran RS, Kumar V, Collins T, Robbins SL (1999) *Robbins Pathological Basis of Disease*. 6th edn WB Saunders

OR

Kumar V, Fausto N, Abbas AK (2004) *Robbins and Coltran Pathologic Basis of Disease*. 7th edn. Saunders

Jubb KVF, Kennedy PC Palmer N (1993) *Pathology of Domestic Animals* 4th edn Academic Press, San Diego.

Thomson RG, Carlton WW, Zachary JF, McGavin MD (2000) *Thomson's Special Veterinary Pathology* 3rd Edition. Mosby, St Louis.

Leman AD et al (1992) *Diseases of Swine* Wolfe Publishing, London.

Randall CJ, Reece RR (1996) *A Colour Atlas of Avian Histopathology* Mosby-Wolfe, London.

Slauson DO, Cooper BJ (2001), *Mechanisms of Disease. A Textbook of Comparative General Pathology*. 3rd edn. Williams & Wilkins, Baltimore.

Thomson R (1984) *General Veterinary Pathology* 2nd Edition. WB Saunders, Philadelphia.*

Buller N, Plumb J (2004) *Bacteria from Fish & Other Aquatic Animals: A Practical Identification Manual*. CABI Publishing CAB International

Fish Diseases: Proceedings 106 Refresher Course for Veterinarians, Post Graduate Committee in Veterinary Science, 23-27 May 1988.

Humphrey JD, Langdon JS (1985) *Diseases of Australian Fish and Shellfish* Proceedings of Workshop Australian Fish Health Reference Laboratory, Regional Veterinary laboratory, Benalla 27-30 May 1985.

Noga EJ (1996) *Fish Disease. Diagnosis and Treatment* Mosby-Year Book Inc, Missouri.

Roberts RJ (2001) *Fish Pathology* 3rd Edition. WB Saunders London.

Australian Standard AS 2243, Safety in Laboratories, Parts 1-9 can be purchased from Standards Australia outlets in all Capital cities.

Journals (particularly of the immediate past 5 years).

American Journal of Veterinary Research.

Australian Veterinary Journal.

Journal of Clinical Microbiology (<http://www.journals.asm.org/>)

NZ Veterinary Journal.

Research in Veterinary Science.

Veterinary Pathology.

Communicable Diseases Intelligence (<http://www.cda.gov.au/pubs/cdipubs.htm>)

Journal of Veterinary Microbiology

Journal of Veterinary Medicine – Series B

Letters in Applied Microbiology

Journal of Applied Microbiology

Journal of Emerging Infectious Diseases – (<http://www.cdc.gov/ncidod/eid/>)

Journals for Review Articles

Clinical Microbiology Reviews (<http://www.journals.asm.org/>).

Immunology Today.

New England Journal of Medicine.

Websites

Microbiology resources- general

<http://www.microbiology-direct.com/>

<http://www.microbes.info/>

Lists of microbiology journals – including advice on on-line availability

Veterinary Microbiology and Microbial Diseases Membership Guidelines 2004

© 2011 The Australian and New Zealand College of Veterinary Scientists ABN 00 50 000894 208

<http://www.microbiology-direct.com/journals/journals.asp>

Veterinary bacteriology tests

http://vtpb-www.cvm.tamu.edu/vtpb/vet_micro/bacteriology/default.html

Veterinary viral pathogens

http://vtpb-www.cvm.tamu.edu/vtpb/vet_micro/descriptions_viruses/

Veterinary mycology

<http://www.vetmed.wisc.edu/students/vetmycology/lab.html>

Aquatic Animal Health Standard Diagnostic Techniques:

<http://www.affa.gov.au/content/output.cfm?ObjectID=A85A7213-AFFB-4982-8174741FDD7A171E>

Australian National Quality Assurance Program

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

Australian and New Zealand Standard Diagnostic Procedures (limited number only)

<http://www.scahls.com/stds.htm>

Zoonoses (General)

<http://www.cdc.gov/ncidod/EID/vol4no3/murphy.htm>

<http://www.who.int/health-topics/zoonoses.htm>

<http://vetgate.ac.uk/browse/cabi/detail/e1760ee496b6fe4203b90d2969611dfc.html>

<http://www.vetmed.wisc.edu/pbs/zoonoses/>

Zoonoses (Australia and New Zealand)

<http://www.cda.gov.au/pubs/cdi/2003/cdi2701/htm/cdi2701a15.htm>

Emerging infectious diseases – Australia and New Zealand

<http://www.promedmail.org/pls/askus/f?p=2400:1000>

<http://www.cdc.gov/ncidod/eid/vol7no5/pdf/crump.pdf>

<http://www.cda.gov.au/pubs/cdi/1997/cdi2107/cdi2107a.pdf>

Laboratory safety – Australian

<http://www.pers.mq.edu.au/OHS/dgclass/labsafe.html>

<http://www.scieng.flinders.edu.au/biology/school/internal/docs/Lab-safety.pdf>

<http://studenthelp.itee.uq.edu.au/ohs/page3.html>

FURTHER INFORMATION

For further information contact the College Office

Telephone: International +61 (07) 3423 2016

Fax: International +61 (07) 3423 2977

Email: admin@acvsc.org.au

Web: www.acvs.org.au

Postal Address: Building 3, Garden City Office Park, 2404 Logan Road
EIGHT MILE PLAINS QLD 4113 Australia

© 2011 The Australian and New Zealand College of Veterinary Scientists ABN 00 50 000894 208

This publication is copyright. Other than for the purposes of and subject to the conditions prescribed under the Copyright Act, no part of it may in any form or by any means (electronic, mechanical, microcopying, photocopying, recording or otherwise) be reproduced, stored in a retrieval system or transmitted without prior written permission. Enquiries should be addressed to the Australian and New Zealand College of Veterinary Scientists