Note: The interviews will be conducted on a single Saturday in early December. Please contact Dr. da Costa (dacosta.6@osu.edu) for further information and to arrange an interview.

The residency program in Neurology and Neurosurgery at the Ohio State University provides advanced clinical training and specialization in the diagnosis and treatment of neurologic diseases of small and large animals under the supervision of 2 board-certified specialists. The residency is a 3-year combined residency and graduate studies program leading to a Certificate of Residency and Master of Science degree.

Training is designed to insure development of clinical competence in neurology and neurosurgery by facilitating development of clinical proficiency, clinical skills, and knowledge through exposure to a wide variety of cases at all levels of complexity. This goal is facilitated by location of the Veterinary Medical Center in a large metropolitan area (population over 1.5 million) that provides a rich variety of case material as well as a referral base that includes Ohio, Indiana, Pennsylvania, Kentucky, West Virginia and Michigan. Case management is carried out with the guidance and collaboration of the neurology faculty. State-of-the-art diagnostic and surgical equipment and facilities are available to develop technical expertise in diagnostic and therapeutic procedures.

All residents enrolled in a program in the Department of Veterinary Clinical Sciences at The Ohio State University must complete a significant piece of original research that forms the basis of their thesis to meet requirements for obtaining their MS degree. The research thesis has to be completed and defended prior to completion of the 3-year training program. We believe that completion of the MS degree provides significant advantages to the resident in their maturation and development as a neurologist. Regardless of the residents anticipated career (private practice, academia, research, or industry), the completion of advanced didactic courses (for example; biostatistics, pharmacology, advanced neurology, cardiology, nephrology) and significant research as a principal investigator provide insights and understanding that are rarely achieved in clinical residency programs.

The resident is STRONGLY encouraged to read the GIG published by the ACVIM each year to ensure they understand ALL ACVIM requirements for their residency program. The GIG is available at www.ACVIM.org.

Specific ACVIM neurology residency requirements
The resident must complete at least 75 weeks of clinical training in neurology, with at least 50 of these weeks under direct supervision of an ACVIM diplomate. Standard residency programs must be pre-approved by the Neurology Residency Training Committee.

- The resident is required to maintain a case log to assist in the application process for certification and to allow the resident and their committee to determine if an appropriate balance of case material is being seen. The ACVIM requires that records be retrievable.
- The resident is required to keep a week to week schedule during the residency. A summary of the weekly schedule must be signed by both the resident and advisor and submitted to the ACVIM Neurology Credentials Committee by October 1 following the end of each year of residency.
- A residency advisor, who serves as ACVIM mentor, and a residents committee are assigned to each resident at the beginning of the residency program. The resident's progress will be reviewed by the committee every 6 months.

**Important dates to keep in mind:**

**Summary of Procedures for Candidate Certification**
ACVIM, Specialty of Neurology

**Registration**
Send to: ACVIM Office
When: Within ninety (90) days of beginning Residency Training Program
What: Registration Packet, Candidate Remittance Form and Registration Fee
Reviewed by: Neurology Residency Training Committee
Response time: Eight (8) weeks

**General Examination**
Send to: ACVIM Office
When: By October 1 of the year preceding the examination
What: Resident Advisor progress letter, two multiple-choice questions, Candidate Fee Remittance Form and General Examination Fee
Reviewed by: ACVIM Office
Response time: Thirty (30) days

**Credentials for Specialty Examination**
Send to: ACVIM Office
When: By October 1 of the year preceding the examination
What: Credentials packet, Candidate Fee Remittance Form and Credentials Fee
Reviewed by: Neurology Credentials Committee
Response time: Sixty (60) days
Registration and Fee for Taking the Specialty Examination
Send to: ACVIM Office
When: By February 1 of the year of the examination (for candidate retaking the examination – see section D.2.j for your deadlines)
What: Candidate Fee Remittance Form and Specialty Examination Fee
Reviewed by: ACVIM Office and Neurology Credentials Committee
Response Time: Thirty (30) days

1 Objectives
The objectives of the program are for the resident to:

- Develop comprehensive, state-of-the-art expertise and clinical and surgical proficiency in neurology and neurosurgery;
- Satisfy the criteria necessary to qualify for Board Certification, and to prepare the resident for successful completion of the American College of Veterinary Internal Medicine qualifying and certifying examinations;
- Prepare for future career goals of teaching, clinical research, scientific publication, or specialized practice; and
- Complete a Master of Science or PhD degree in a specific area of research endeavor related to Neurology and/or Neurosurgery.

2 Faculty and staff

- Faculty:
  - Dr. Ronaldo da Costa, DMV, MSc, PhD, Dipl. ACVIM - Neurology Assistant Professor, and Service Head, Neurology and Neurosurgery
  - Dr. Sarah Moore, DVM, Dipl. ACVIM - Neurology Assistant Professor, Neurology and Neurosurgery
  - Dr. Laurie Cook, DVM, Dipl. ACVIM - Neurology Assistant Professor – Clinical, Neurology and Neurosurgery

- Current house officers:
  - Dr. Kari Foss, DVM (Resident 2009-2012)
  - Dr. Paula Martin-Vaquero, DVM (Resident 2010-2013)

- Neurology technicians:
  - Amanda Waln
  - A second technician is in the process of being hired

3 Prerequisites and application

- All potential residents must meet the minimum requirements and qualifications (see Residency Program Handbook, CVM Graduate Program Handbook and Graduate School Handbook: http://cvm.osu.edu/assets/pdf/education/graduatePrograms/cvmGraduate
The residency is a formalized program approved by the American College of Veterinary Internal Medicine.

Residents who are foreign nationals (non-US citizens) must be in possession of the appropriate visas and work authorization as outlined in the Department of Veterinary Clinical Sciences Residency Program Handbook (link). In addition, foreign nationals must also meet the requirements of the university Graduate school for the Test of English as a Foreign Languages (TOEFL) or Michigan Test of English Proficiency (MTELP) – see Graduate Program Handbook. Currently admission requirements include:

- a minimum 3.0 GPA during undergraduate and professional (veterinary degree) studies;
- a minimum 3.3 GPA for all graduate coursework;
- submission of the results of the GRE (Graduate Record Examination). GRE scores must have a verbal score higher than the 25th percentile and quantitative score higher than the 50th percentile. The GRE requirement may be waived for international veterinarians;
- Foreign applicants must meet the Graduate School Admissions requirements for the Test of English as a Foreign Language (TOEFL) (currently 550 for the paper-based test, 213 for the computer-based test, and 79 for the internet-based test).

The Neurology faculty requires that each potential applicant either interview personally during a visit to The Ohio State University (strongly preferred) or, at least, complete a telephone interview. The interviews will be conducted on a single Saturday in early December. Please contact Dr. da Costa (dacosta.6@osu.edu) to arrange an interview.

4 Employment and benefits (see Residency Program Handbook)

- Salary
- Health insurance
- Book/travel allowance
- Personal + Professional days leave (from policy)
- External consultation and employment
- Licensure

5 Orientation

- During the first week of the residency program, all incoming residents participate in a comprehensive orientation program to introduce them to the department, college and university, complete necessary documentation, and to facilitate integration into our program and activities.
• Following the general orientation program for all residents, new residents will meet with the faculty to discuss and plan the initial few weeks and months of the first year of the residency.

6 Advisors and mentoring

• Clinical advisors: Each of the Neurology faculty members will serve in an equal capacity as clinical advisors. Residents will take advice and input from the faculty Neurologist on-clinics and/or the Neurologist involved with the case when it was seen initially.
• Academic advisor: The principal academic advisor will be decided once the area of research is decided.
• Thesis committee: Once the specific area of research is selected, an Advisory committee will be formed that will consist of the academic advisor, at least one of neurology faculty and any other faculty members who may be able to provide advice in the development of a specific research project, during the project and to completion of the study. Typically, the Advisory committee serves as the Examination committee for the thesis defense. These committees must consist of at least 3 graduate faculty members.
• Mentoring: The neurology faculty members serve as mentors throughout the course of the residency, graduate course program and research project. We regard mentoring of our residents as one of our most important, and most enjoyable, duties. We are committed to providing support, guidance and help in all aspects of their professional lives during the course of the residency. We care about our resident’s professional and personal development and aim to assist our residents in being the best that they can possibly be and to prepare them for successful careers in neurology.

7 Clinical Service responsibilities

1. Residents are expected to participate in all small and large animal clinics, emergencies and in-house consultations.

2. When possible, residents should examine all outpatients and hospitalized patients.

3. Residents should assist in and/or perform all neurologic procedures. The degree of resident involvement in the procedure will be based on the individual skill level of each resident and is expected to increase with each year of training the resident receives.

DIAGNOSTIC/THERAPEUTIC PROCEDURES
The resident is expected (by the end of the residency) to be competent to set up and perform the following diagnostic procedures (this is not an all-inclusive list):

1. Obtain and interpret CSF samples
2. Evaluate and interpret spine and skull radiographs, CT of the spine and skull, myelography, and MR imaging of the spine and brain
3. Common electrodiagnostic procedures to include:
   a. EMG
   b. Nerve conduction studies
   c. Repetitive stimulation testing
   d. BAER
   e. Basic EEG and basic EEG interpretation
4. Obtain nerve and muscle biopsies

SURGICAL PROCEDURES
The resident is expected to (by the end of the residency) be competent in the set up and performance of the following surgical procedures:

1. Hemilaminectomy in the thoracolumbar spine
2. Cervical ventral slot procedure
3. Dorsal laminectomy in the cervical and thoracolumbar spine
4. Fenestration
5. Craniotomy (transfrontal and rostrotentorial approaches)
6. Dorsal decompression of the lumbosacral space

**The resident is also encouraged to become familiar with additional procedures such as cervical hemilaminectomy, foramen magnum decompression, methods of spinal fixation and atlantoaxial stabilization, and will gain experience in these procedures as cases present themselves.

Medical Records
Medical records should be completed in a timely fashion and should include the following:

1. Chart diagnosis and signature
2. Mini-SOAP reviewed and comments made as necessary
3. Neurologic examination sheet completed and department copy filed
4. Referral letter copy sent.
5. In-patients SOAPs should be read daily and comments made in the chart during the hospitalization of the pet to ensure that the patient is being properly cared for and that the student understands the diagnosis, treatment plan and prognosis.

6. Surgery reports should be reviewed, corrected and final copies approved, printed and filed within 48 hours of the surgery. **It is the responsibility of the primary clinician on the case to make sure that the surgery reports are complete.**
7. Follow up on laboratory tests and call owners and referring veterinarians with results. It is acceptable for the student on the case to call owners with results. Referring veterinarian communications should be done by the resident on the case.

8. Follow up on pathology reports and call owners and referring veterinarians with results.

After-hours Emergencies
1. It is the resident’s responsibility to arrange a schedule for emergency coverage and to ensure that the front desk, the emergency service and the senior faculty on clinics is aware of this schedule.

2. The resident on call must be reachable by cell phone at all times.

3. After hours neurosurgery duty is shared between the neurology and surgery residents. After hours medical neurology support is provided by the neurology residents.

4. It is the responsibility of the resident on call to evaluate all neurologic cases admitted to the hospital within 24 hours of their admission. Any nonambulatory animal should be evaluated at the time of admission. Animals admitted to the hospital on emergency should be evaluated by the resident on call at least once daily until regular business hours resume.

   - An animal with no deep pain sensation should be anesthetized for diagnostic evaluation and potential surgery immediately, unless decided otherwise by the senior clinician.
   - An animal with loss of voluntary movement should have diagnostics and surgery performed within 24 hours of admission.
   - The timing for workup of less severely affected animals will be determined by the resident on call in consultation with the senior clinician.

The Resident should contact the Senior clinician to discuss the plan for emergency cases.

Hospitalized Patients
1. Residents are expected to complete a physical and neurologic exam on all hospitalized patients prior to attending morning rounds.

2. Residents are responsible for checking ICU orders to ensure accurate treatment of the patients.

3. The resident or the student on the case should update owners on the condition of the patient each morning after evaluation.
Patient Log and Surgery Log
1. Residents are encouraged to maintain a patient log.
2. Residents are encouraged to maintain a surgery log. It is important that this log document the time in surgery for each procedure, as ACVIM requires proof that the required 50 hours of surgical time have been met.

8 - GRADUATE PROGRAM

8.1 - Educational opportunities
As part of their MS degree program, residents have to complete 20 hours of didactic coursework. Courses are offered at the College of Veterinary Medicine (a full curriculum of graduate courses on a range of topics is offered within the Department of Veterinary Clinical Sciences) as well as by other colleges at The Ohio State University. Most Residents take the courses offered in the department which are clinically oriented. A course grid for the current 3 year period can be found at [http://cvm.osu.edu/assets/pdf/education/graduatePrograms/vcs/vcsGraduateCourseGrid.pdf](http://cvm.osu.edu/assets/pdf/education/graduatePrograms/vcs/vcsGraduateCourseGrid.pdf)

Time will be allowed for weekly Journal Clubs, book clubs, and specific rounds (neuropathology rounds, neuroimaging rounds). The Resident(s) should lead these activities, selecting journal articles and interesting cases. The Neurology faculty will participate and assist the Resident in selecting appropriate case material and articles.

8.2 - Research and scholarly activity

Research Project and Master’s Degree

1. Residents are responsible for developing, with the assistance of the graduate mentor, a research project suitable for use for a Master’s thesis and publication.
2. Residents, working alongside the academic (research) advisor, are expected to write a grant proposal and to successfully acquire funding for their projects.
3. Residents are expected to present the results of the research project in at least one annual ACVIM meeting. A poster abstract and presentation of the residents research is also made at the CVM Research Day in April each year. The Department of Veterinary Clinical Sciences also requires each resident to present their research during a research seminar to the faculty in their senior year.
4. Residents are expected to successfully complete a Master’s thesis defense.

5. Residents are expected to complete the Master’s thesis and submit it to the library.

6. Residents are expected to submit the Master’s project for publication at the same time (or before) the Dissertation’s defense.

7. Residents are expected to complete the coursework required to obtain the Master’s degree with the guidance of their mentors.

8. Residents must be fully aware of the strict requirement for Thesis completion and manuscript submission by the end of the third year of Residency. If these requirements are not met the program will be considered incomplete which can jeopardize the certification process by the ACVIM.

8.3 - Independent Study

1. The resident is responsible for reviewing journals at least on a monthly basis for literature required to read for boards (please see attached reading list published by the ACVIM, subspecialty of neurology).

2. The resident is expected (over the course of the residency) to read and become familiar with the contents of all books on the suggested reading list published by the ACVIM, subspecialty of neurology.

9 - Teaching responsibilities

- Teaching responsibilities include clinical teaching of senior and junior veterinary students assigned to the resident’s clinical service.

- During receiving clinics (appointments), the resident should strive for a balance between efficiency and the learning needs of the students.

- Residents may be asked to conduct sit-down rounds as clinical experience and teaching skills allow. Senior faculty also will attend sit-down rounds. The Resident may also conduct topic rounds to senior students.

- Residents also participate in teaching the Neurological examination to veterinary students during laboratories.

- Residents will be given the opportunity to develop lecture skills by preparing and delivering topic rounds to 4th year veterinary students.
10 - Evaluations

Formal Resident Performance Evaluations are completed by December 1st and June 1st each year. Details of the nature and structure of these evaluations can be found in the Residency Program Handbook.

11 - Off-clinics Time

The resident will have a total of 24 weeks off-clinics during the 3-year program (8 weeks/year). Additional time may be arranged but considerable justification must be provided. The 8 weeks off-clinics per year should be used for vacation (10 working days); research proposal, manuscript and thesis preparation; studying for board examination, and attendance at the ACVIM Forum in the second and/or third years of the program. In order to devote enough time for board preparation the Resident must show significant progress in his/her research project and thesis/manuscript preparation.

Additionally, each resident will have a total of 15 working days of professional leave available to them during their residency for use to attend conferences, externships or other approved scholarly activities.

12 - Vacation/Illness (See Residency Program Handbook)

Vacation Time
1. The resident may only schedule vacation time after the approval of all faculty members.

2. Leave slips must be filed with the Department prior to vacation days and the small and large animal reception desks must be informed in advance.

Illness
1. The graduate school does not provide paid sick leave.

2. In the event of illness, the resident should notify a technician and the faculty member on clinical service as early as possible.