

# MICROBIOLOGY MENTORSHIP



VM 21300

# CRITERIA HANDBOOK AND LOGBOOK

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# INDEX OF NOTEBOOK

## Student Information

- Goals of Microbiology Mentorship
- Contact person at Purdue University
- Pre-requisites for VM 21300 Microbiology Mentorship
  - ❖ Courses
  - ❖ Contracts and agreements
  - ❖ Technical standards
  - ❖ Insurance
- Selection of Clinical Mentorship site – facility criteria
- Selection of Mentorship Supervisor
- Materials – The Criteria Handbook and Logbook
- Completion of Microbiology Clinical Mentorship

## Clinical Mentorship Tasks

Introduction to Essential Tasks and Criteria

1. Video Verification of equipment and supplies
2. Collect Sample for Dermatophyte Culture and Inoculate Dermatophyte Culture Media\*
3. Collect Swab for Culture and Streak an Agar Plate to Obtain Isolated Colonies\*
4. Streak Agar Plate to Obtain a Pure Culture with Isolated Colonies
5. Perform Kirby-Bauer Disc Sensitivity Test
6. Prepare a Gram-Stained Slide
7. Perform Catalase Test
8. Perform Oxidase Test

## Clinical Mentorship Project

9. Identify Bacteria

### **NOTE THE FOLLOWING DUE DATES FOR THE TASKS ABOVE:**

***Fall or Spring semester      11:59 p.m. ET Thursday of week 1 –Task 1  
11:59p.m. Thursday of week 8 – Tasks 2-9***

***Summer semester              11:59 p.m. ET Thursday of week 1 –Task 1  
11:59p.m. Thursday of week 7 – Tasks 2-9***

***Incomplete grades will not be assigned for mentorships at the end of the semester.***

***Grade penalties will be assessed for tasks submitted after the due date.***

***Resubmission due dates will be set by the instructor as required.***

***\*IMPORTANT! See following page for Animal Use Guidelines***

## **Animal Use Guidelines**

The student shall abide by the following guidelines when performing mentorship tasks:

1. All animals used for demonstration of mentorship skills must be appropriately restrained by another person, for the safety of the patient and the student.
2. A mentorship task may be performed only once on a single animal.
3. A student may perform a maximum of ten (10) minimally invasive tasks (denoted by one asterisk) on a single animal within a 24-hour period.
4. A student may perform a maximum of three (3) moderately invasive tasks (denoted by two asterisks) on a single animal within a 24-hour period.
5. When combining tasks, a student may perform a maximum of five (5) minimally and three (3) moderately invasive tasks on a single animal within a 24-hour period.
6. Tasks denoted with no asterisks do not involve live animal use.

For example, a student might perform the following tasks on an animal in a single day:

1. Restrain a dog in sternal recumbency\*
2. Restrain a dog in lateral recumbency\*
3. Restrain a dog for cephalic venipuncture\*
4. Restrain a dog for saphenous venipuncture\*
5. Restrain a dog for jugular venipuncture\*
6. Administer subcutaneous injection\*\*
7. Administer intramuscular injection\*\*
8. Intravenous cephalic injection – canine\*\*

Failure to comply with the Animal Use Guidelines may result in failure of the Clinical Mentorship.

# STUDENT INFORMATION

## GOALS OF VM 21300

### MICROBIOLOGY CLINICAL MENTORSHIP

Working with a small animal veterinary care facility, the student will practice several tasks under the supervision of a clinical mentor (veterinarian or Credentialed Veterinary Technician).

In order to achieve the goals for this Clinical Mentorship, the tasks must be performed to the level of competency as outlined by the *Criteria* for each task.

The student is responsible for providing documentation for each task as defined by the *Materials Submitted for Evaluation and Verification* section on each task.

In addition to the documentation, the Clinical Mentorship site supervisor will verify that the student performed the task under their supervision.

Final approval of successful performance and completion of the Clinical Mentorship will be made by the Purdue University instructor in charge of the Clinical Mentorship. This approval will be based upon the documentation provided by the student.

The Purdue University instructor in charge has the option to require additional documentation if, in their judgment, the student has not performed and/or documented the task to the level set by the Criteria.

Documentation of completed tasks is essential to validate the educational process and insure that the performance of graduates of the Veterinary Nursing Distance Learning Program meets the standards of quality required by the Purdue University College of Veterinary Medicine faculty and the American Veterinary Medical Association accrediting bodies.

## CONTACT PERSON

Any questions regarding the Clinical Mentorship process should be directed to:

Pam Phegley, BS, RVT  
Purdue University  
Veterinary Technology Program  
625 Harrison Street, Lynn Hall G171  
West Lafayette IN 47907  
(765) 496-6809  
phegleyp@purdue.edu

# PRE-REQUISITES FOR VM 21300 MICROBIOLOGY CLINICAL MENTORSHIP

## Contracts and Agreements

Because of legal, liability and AVMA accreditation issues, the following documents must be completed *prior to beginning* the Clinical Mentorship

1. VM 21300 Clinical Mentorship and Facility Requirement Agreement
2. Clinical Mentorship Supervisor Agreement
3. Release of Liability, Health Risk and Insurance, Technical Standards and Mentorship Code of Conduct (Student Acknowledgement Form)
4. Professional Liability Insurance Coverage

These forms are available on the VNDL website and can be completed electronically using DocuSign.

If more than one Clinical Mentorship course is taken, separate Clinical Mentorship and Facility Requirement Agreement and Supervisor Agreement must be completed for each course.

More than one Mentorship Supervisor may sign the mentorship logbook. Each must be either a DVM or a credentialed technician, and must complete a separate Supervisor Agreement.

*Failure to complete and submit the listed documents and/or non-payment for Student Professional Liability Insurance Coverage will prevent the student from enrolling in the Clinical Mentorship.*

## Insurance

Two types of insurance are recommended or required for the student working in a Clinical Mentorship.

Health Insurance is highly recommended to cover the medical expenses should the student become injured while on the job. It is the student's responsibility to procure such insurance.

Liability Insurance is required to protect the student in the event of a suit filed against the student for acts he/she performed while in the Clinical Mentorship.

Each VNDL student is required to purchase, for a nominal fee, Professional Liability Insurance through Purdue University. The fee covers from the time of initiation of coverage until the subsequent July 31<sup>st</sup>.

Students will not be enrolled in Clinical Mentorships until the Professional Liability Insurance is paid, and the student is covered by the policy.

# WHAT TO LOOK FOR IN A MENTORSHIP FACILITY

When evaluating a facility for clinical mentorships, the student should thoroughly research the site. It is strongly suggested to visit the site if not currently working there. This experience is a chance to begin to apply the wealth of knowledge and skills acquired and developed to this point in the veterinary nursing education. The following are points of discussion or questions to consider when evaluating the site (RVT includes any credentialed veterinary technician):

- Does the site currently have credentialed veterinary technicians/nurses on staff?
- Are there any boarded DVM specialists or VTS RVTs on staff?
- What is the role of the technician/nurse versus other members of the staff (such as veterinary assistants)?
- What is the overall size of the staff (professional and paraprofessional staff)?
- Is the site an accredited practice or facility (AAHA, ALAC, etc.)?
- Has the site hosted a VNDL student in the past?
- Does the staff seem receptive to hosting a student?
- Is the site located in a safe and easily accessible location? Are there geographical considerations?
- Is this also an employment opportunity?
- Ask the supervisor:
  - What are their specific goals for the student?
  - Have they ever been a supervisor before for a veterinary technician/nursing student?
  - Who else at the site may be involved in supervision?
  - Do they have any concerns for the legal allowances in which the student may perform certain tasks?

It is strongly recommended that the student show potential mentorship supervisor(s) examples of mentorship logbooks, so they are aware of what the student will need to accomplish in this facility. The discussion should include that most tasks will require videos of the student performing skills, and how this will be accomplished. A student may have multiple supervisors (either DVM or credentialed technician), and one must be present any time the student is performing skills for a clinical mentorship. Supervisors sign Task Verification forms which state that they observed the student as they performed each task. Mentorship supervisors act as coaches and must be present to ensure the safety of the patient and personnel. They are not involved in evaluation of skills; this is done by Purdue instructors.

# SELECTING THE CLINICAL MENTORSHIP SITE – FACILITY REQUIREMENTS

You must visit the Clinical Mentorship Site and determine if the following supplies and equipment are readily available to you for use during your Clinical Mentorship. You must complete and have the facility veterinarian sign the VM 21300 Clinical Mentorship and Facility Requirement Agreement.

The veterinary care facility must be equipped with the following equipment:

- Forceps or hemostats
- Ruler with mm markings
- Flame source (cigarette lighter, wooden matches, Bunsen burner)
- Microscope with 10X, 40X, 100X
- Incubator – no specific type (even an egg incubator will work), as long as it reaches 37 degrees Celsius

The veterinary care facility must be equipped with the following items:

- Latex gloves (non-sterile)
- Cotton balls
- 70% isopropyl alcohol
- Scalpel blades (#10 or 15)
- Sterile cotton-tipped applicators
- Sterile saline
- Microscope slides
- Immersion oil
- 3% hydrogen peroxide
- Wax pencil or crayon

The student will be provided with a kit\* which will include:

- Disposable inoculating loops
- Disposable pipettes
- Gram stain kit
- Blood agar plates
- Mueller-Hinton agar plates
- Dermatophyte test medium
- Oxidase reagent
- 0.5 McFarland nephelometer
- Antibiotic discs

**\*NOTE: The student will be informed before the kit is sent (in week 2 of semester), and materials must be used within 1-2 weeks in order to obtain accurate results. It is imperative that the student follow all steps closely for these tasks, as additional materials will not be sent. If there are questions please contact the instructor BEFORE performing the task. There is a 7-day plan to complete all tasks, outlined on page 12 of this logbook. If the student drops the course after the kit has been sent, an additional kit will NOT be sent when the student registers for the course again. The student will be responsible for purchasing the necessary materials.**

## SELECTION OF THE CLINICAL MENTORSHIP SUPERVISOR

The Clinical Mentorship Supervisor is the person who will sign your Logbook and verify performance of tasks at the Clinical Mentorship site. This person must be a credentialed veterinary technician (have graduated from an AVMA accredited program or met State requirements for credentialing as a veterinary technician) or a licensed veterinarian.

An individual who claims to be a “veterinary technician” but has not met the criteria for credentialing above is not eligible to be mentorship supervisor.

The individual is not considered to be an employee of Purdue University when acting as your Clinical Mentorship supervisor.

Each Clinical Mentorship Supervisor must complete a *Clinical Mentorship Supervisor Agreement* that acknowledges that the supervisor has read and agreed to the *Mentorship Code of Conduct*. Multiple supervisors may be used for documentation of mentorship tasks. Each supervisor must complete a separate Clinical Mentorship Supervisor Agreement.

Should your Clinical Mentorship Supervisor change during the course of the Clinical Mentorship, you will need to have your new supervisor complete a *Clinical Mentorship Supervisor Agreement* and return it to the Purdue VNDL office. These forms are available on the VNDL website and can be completed electronically using DocuSign.

***ALL TASKS PERFORMED FOR A MENTORSHIP SHOULD BE OBSERVED IN PERSON BY A SUPERVISOR FOR WHOM DOCUMENTATION HAS BEEN SUBMITTED***



# CRITERIA HANDBOOK AND LOGBOOK

This Criteria Handbook and Logbook contains the list of tasks that must be successfully completed in order to receive credit for this Clinical Mentorship. You are expected to have learned the basics of how, why, and when each procedure is to be done from the courses listed as pre-requisites for this Clinical Mentorship. This booklet contains the directions and forms that must be followed and completed in order to meet the standards set for successful completion of this Clinical Mentorship.

Please read each component of each task carefully before doing the task to minimize the number of times you have to repeat the task. The components of each task are summarized:

**Goal** – Describes the ultimate outcome of the task you will perform.

**Description** – Lists the physical acts that you will perform, and under what conditions these acts will be completed.

**Criteria** – Lists specific, observable, objective behaviors that you must demonstrate for each task. Your ability to demonstrate each of these behaviors will be required in order to be considered as having successfully completed each task.

**Number of Times Task Needs to be Successfully Performed** – States the required number of times to repeat the tasks. The patient's name and the date each repetition of the task was performed must be recorded on the Task Verification Form.

**EACH REQUIRED REPETITION OF THE TASK MUST BE PERFORMED ON A DIFFERENT ANIMAL.** You cannot use the same animal to do all of the repetitions of a task. However, you can use the same animal to perform different tasks. In other words, you can't do three ear cleanings on the same animal, however, you can do an ear cleaning, an anal sac expression, and a venipuncture on the same animal.

**Materials Submitted for Evaluation and Verification** – These specific materials, which usually include video or other materials, must be submitted to demonstrate that you actually performed the task as stated. Each evaluation states specifically what must be shown in the submitted materials.

*The Purdue University course instructor for this Clinical Mentorship has the option to request further documentation if the submitted materials do not clearly illustrate the required tasks.*

It is recommended that the video materials document all angles of the procedure. The purpose of the video and other material is to provide "concrete evidence" that you were able to perform the task to the standard required.

If you do not own a video camera, one may be borrowed or rented. Pre-planning the video procedures will help reduce the need to redo the video documentation. Explain what you are doing as you perform the video documentation, as narration will help the evaluator follow your thought process and clarify what is seen on the video. Voiceovers may be done to clearly explain what is being performed. At the beginning of each task, clearly announce what task you are doing, or insert a written title in the video.

Videotapes, photographs, radiographs, slides, written projects, the Criteria Handbook and Logbook and any other required documentation will not be returned. These items will be kept at Purdue as documentation of the student's performance for accreditation purposes.

This validation is essential to help the Purdue VNDL meet AVMA accreditation criteria. Therefore, it is essential that you follow the evaluation and validation requirements.

**Task Verification Forms** – Each task has a form that must be completed and signed by the Clinical Mentorship Supervisor.

**Supplementary Materials** – Logs, written materials, photographs, or other forms/documentation may be required for specific tasks. Be sure to read the Materials to be Submitted for Evaluation section very carefully and return all documented evidence as prescribed.

## COMPLETION OF THE CLINICAL MENTORSHIP

Mentorship logbooks include due dates for sets of tasks. Each set must be submitted by the deadline listed in the logbook. Late submissions will incur a grade penalty. Incomplete grades will not be assigned for mentorships at the end of each semester.

Feedback will be emailed to the student following review of each set of submitted tasks. As necessary, instructors may require resubmission of some tasks. When feedback is sent, due dates for resubmissions will be given. ***It is crucial that students with pending feedback check their Purdue emails frequently so this information is received in a timely manner.***

Final approval of successful performance and completion of the Clinical Mentorship will be made by the Purdue University instructor in charge of the Clinical Mentorship based upon the documentation provided by the student.

Upon successful completion of all tasks in the clinical mentorship course, a grade will be assigned by the course instructor based upon the documented performance of the tasks.

***Note: A student who is dismissed from their mentorship facility may fail the course and may be dismissed from the program.***

**Task Verification forms** and other written materials should be submitted in **Assignments** in Brightspace. Task Verification forms are due by the task due date in order for each task to be complete. You must assign the forms and any other supplemental paperwork required for the tasks, to the correct course assignment in order for the instructor to view them.

**Videos** should be submitted in **Assignments** in Brightspace. This method of online submission does not limit how much you put on, is no cost to you, and automatically archives. You must assign the videos to the correct course assignment in order for the instructor to view them.

### **Using Kaltura for Video Assignments**

**Kaltura** is a secure streaming service that Purdue offers for faculty, staff, and students. Videos uploaded to an assignment via Kaltura will only be accessible to instructor(s) within the course.

#### **Step 1: Set Video Type on Your Device**

Confirm your device is recording in a format accepted by Kaltura; common formats include:

- .MOV/.MP4/.M4V • .WMV
- .AVI
- .WEBM

**Kaltura cannot accept the HEVC video format.**

iPhone/iPad:

- Click on **Settings->Camera->Formats**
- Change the format to **Most Compatible**.

Android:

- In your camera application's settings, *change* the video recording format to **MOV, M4V, or MP4**.

Desktop/Laptop:

- Depending on your recording application, you will need to save your video recording as a common video format (such as .mp4, .mov, or .m4v).

### **Step 2: Allow your Browser to use Pop-Up Windows**

Confirm your browser has pop-ups enabled. Kaltura will pop open a window for you to upload your video. Use the *Help* feature in your preferred browser if you need assistance in enabling pop-up windows.

**If you do not allow pop-up windows on your browser, you will not be able to upload videos.**

### **Step 3: Ensure You Have a Stable High-Speed Internet Connection**

Confirm you have a **stable** internet connection; if you are on a connection that can disconnect on a regular basis your upload may be cancelled. Additionally, you will need to have a **high-speed** connection. Videos may have large file sizes, and a slow connection may result in your video taking a very long time to upload. If you need a stable and fast internet connection but do not have one at home, consider using public wifi at a library or coffee shop.

### **Step 4: Uploading Your Task Verification Form (TVF)**

You must upload your TVF at the same time that you upload your video.

- *Open* the assignment in Brightspace
- *Click* on the "**Add a File**" button. A dialogue box will open allowing you to select the TVF file to upload from your device.

### **Step 5: Uploading Your Video**

Once you have uploaded your TVF, you can upload your video. Scroll down on the page to the Comments area.

- *Click* on the **Insert Stuff** icon on the text editor.
- On the **Insert Stuff** menu that opens, *click* on **Add Kaltura Media**.
- On the **Insert Stuff** window, *click* the **plus** button. On the menu that opens, *click* **Media Upload**.
- The **Upload Media** window will open. *Click* on **Choose a file to upload** to select a file on your computer, or *click and drag* the video file into the box.
- Depending on your internet connection speed and the file size, it may take a few minutes to upload the file. **Allow the file to upload completely and do not close the window.**

You may alter the name of the file and add a description.

Once the file is uploaded and any name or description changes have been made, *click* **</> Save and Embed** to save the video to Kaltura.

- If your video has processed, you may see a preview. Otherwise, you may see an animation that your video is still processing. Even if the video is still processing, you can still submit the video. *Click* **Insert** to add the video to the assignment or discussion
- Your video will be added to the text box. *Click* **Submit** to turn in your assignment.
- You may confirm your submission by clicking on the link to the assignment or discussion and seeing if you can view the video.

**For Support**

Contact the PVM Instructional Design team at [pvmitt@purdue.edu](mailto:pvmitt@purdue.edu) for assistance.

# CLINICAL MENTORSHIP TASKS

## INTRODUCTION TO ESSENTIAL TASKS AND CRITERIA

Before starting each task:

1. Read the Goal, Description, Criteria, and Materials to be Submitted for Evaluation and Verification. Understand what is expected of you for each task.
2. Make sure you have whatever equipment and supplies you need to document the task. Pay particular attention to the details of what needs to be documented and submitted.
3. Make sure you obtain appropriate permissions where necessary. Please inform the facility's owner/manager of your activities. A good relationship with the veterinarian in charge is key to having a positive Clinical Mentorship experience.

After performing each task:

4. Label all items submitted so that the materials you submit for evaluation and validation at Purdue are identified as your submission.
5. Label all videos posted to Brightspace with the name of the task performed.
6. Submit materials to Purdue by the deadlines listed in the logbooks.

# CLINICAL MENTORSHIP PROJECTS

## INTRODUCTION TO SPECIAL PROJECTS

Certain mentorships will have required projects to complete in addition to the required tasks. These are things that are better assessed in the form of a project. Projects should be typed, and checked for correct grammar and spelling.

Before starting each project

1. Read through the project in its entirety. This will give you a description of the project and what is needed to complete it successfully.
2. Determine what materials, if any, need to be submitted for completion of the project.
3. Most projects will come with a list of questions that need to be answered. The responses should be placed inside the notebook for submission with other materials.
4. If videotaping is required for a project, it should be noted on the videotape verbally that this is for the project and not another required task. Some projects may require a verbal narration of a student doing something. Each individual project will define if that is a necessary requirement for that project.

Note: Videotaping and photographs are not for the purpose of verifying if the practice is within OSHA compliance or other government regulations. These projects are for the student's education. It may be determined by the student that the practice is not within the current recommendations. The purpose of these projects is to make the student aware of these issues, and how to recognize the issues and develop suggestions for improvement. There will be certain mentorships where OSHA recommendations, in regards to equipment and policies, will be facility requirements for the mentorship.

## **\*\*Important Information about Performing Microbiology Tasks\*\***

Before your supplies arrive, we highly recommend that you go into the VM 21300 course in Brightspace to review the instructional videos. You should also review the task criteria in the VM 21300 logbook. If you have any questions about successfully completing the criteria for each of the microbiology tasks, contact the instructor for clarification. You will need to allow seven consecutive days for performance of the microbiology tasks. Following is an outline of what should be done each day:

**All tasks should be performed using appropriate PPE, especially gloves, since handling live bacteria!**

### Day 1

- Collect samples and inoculate dermatophyte culture media (orange media/Derm-Duet)
- Swab several things (or animals) in the clinic and streak several blood agar plates to obtain isolated colonies.

### Day 2

- Select isolated colonies from the blood agar plates that you inoculated on day one and streak several new blood agar plates to obtain isolated colonies in a pure culture (i.e., only one type of bacteria growing on the plate)
- Check dermatophyte culture for growth and color change or contaminated growth

### Day 3 (the same pure culture blood agar plate should be used for the rest of tasks)

- Utilize well-isolated colonies from the pure culture blood agar plate that you inoculated on day two to create your gram stain slides
- Utilize well-isolated colonies from the pure culture blood agar plates that you inoculated on day two to inoculate your Mueller-Hinton plates, and place antimicrobial discs on the plates
- Utilize well-isolated colonies from the pure culture blood agar plates that you inoculated on day two to perform your oxidase and catalase tests
- Check dermatophyte culture for growth and color change

### Day 4

- Interpret and record the results of your Kirby Bauer test
- Check dermatophyte culture for growth and color change

### Days 5-6

- Check dermatophyte culture for growth and color change

### Day 7

- Show your dermatophyte culture on your video and verbally describe the appearance of any growth as well as any changes to the color of the agar

## 1. VIDEO VERIFICATION OF REQUIRED EQUIPMENT AND SUPPLIES

- Goal:** Ensure that the student will have access to all equipment and supplies necessary to complete the skills in this course.
- Description:** The student will provide a narrated video showing equipment and supplies specific to this mentorship, to verify that required items are available to them and adequate for completion of tasks in their facility.
- Criteria:** The student introduced the video and showed their face clearly
- The student walked through the facility and showed the following clearly:
- Ruler with mm markings
  - Flame source (cigarette lighter, wooden matches, Bunsen burner)
  - Microscope with 10X, 40X, 100X
  - Incubator – no specific type (even an egg incubator will work), as long as it reaches 37 degrees Celsius

**Number of Times Task Needs to be Successfully Performed:** 1

### Materials Submitted for Evaluation and Verification:

1. Task Verification Form for Video Verification of Required Equipment and Supplies, signed by the Clinical Mentorship supervisor.
2. One video showing the student as they introduced themselves and walked through the facility, showing the listed items clearly. The student narrated the video live as they showed items.

**Student Name:** \_\_\_\_\_

**Supervisor Name:** \_\_\_\_\_ RVT, CVT, LVT  
DVM, VMD

I verify that the student will have access to the items shown, for tasks in this course.

**Signature of Clinical Mentorship Supervisor:** \_\_\_\_\_

## 2. COLLECT A SAMPLE FOR DERMATOPHYTE CULTURE AND INOCULATE DERMATOPHYTE CULTURE MEDIA

**Goal:** To collect an adequate sample for Dermatophyte culture and use that sample to

inoculate Dermatophyte Culture Media in a manner that will yield accurate results.

**Description:** The student will identify a possible Dermatophyte lesion and scrape/pluck an appropriate sample from the edge of the lesion. The student will use the sample to inoculate the Dermatophyte Culture Media.

**Criteria:** The student identified a suspected Dermatophyte lesion

The student washed and dried the affected area with soap and water

The student obtained a small scraping of superficial debris and hair from the margin of the lesion using a sterile scalpel blade and forceps, or plucked a sample of hair from the margin of the lesion using hemostats

The student inoculated the culture media by placing the sample slightly below the surface of the media

The student left the lid to the tube or plate slightly open

The student allowed the culture to incubate at room temperature

The student showed the plate after at least seven days' incubation and verbally stated whether the result was positive or negative for dermatophytosis or evidence of contamination at that time (understanding that the plate should be checked daily for up to one month)

**Number of Times Task Needs to be Successfully Performed:** 1

**Materials Submitted for Evaluation and Verification:**

1. Task verification form for Collect a Sample for Dermatophyte Culture and Inoculate Dermatophyte Culture Media task, signed by the Clinical mentorship supervisor.
2. A video that clearly shows the student collecting a sample for Dermatophyte culture and inoculating Dermatophyte culture media, AND showing growth/results as defined in the above criteria for this task.

**Student Name:** \_\_\_\_\_

**Supervisor Name:** \_\_\_\_\_ RVT, CVT, LVT  
DVM, VMD

**Patient Name:** \_\_\_\_\_ **Date:** \_\_\_\_\_

I verify that the student performed these tasks under my supervision.

**Signature of Clinical Mentorship Supervisor:** \_\_\_\_\_



### 3. COLLECT SWAB FOR CULTURE & STREAK AN AGAR PLATE TO OBTAIN ISOLATED COLONIES

**Goal:** To collect an adequate sample for culture and use that sample to inoculate an agar plate in a manner that will yield discrete isolated colonies of growth.

**Description:** The student will collect a sample with a sterile swab from an area in the hospital or from a patient that would likely yield bacterial growth. The student will use the sample to inoculate a blood agar plate.

**Criteria:** The student lightly moistened a sterile swab with sterile saline

The student used the sterile swab to collect a sample from an area of the hospital (e.g. dirty sink, floor, drain, etc.) or from a patient (nose, mouth, ear, wound) and used that swab to apply the primary streak on a blood agar plate

The student rotated the plate and used an inoculating loop to streak the next quadrant of the blood agar plate, being careful to overlap the primary streak only once or twice

The student rotated the plate and used an inoculating loop to streak the third quadrant of the blood agar, being careful to overlap the second streak only once or twice

The student rotated the plate again and used an inoculating loop to streak the fourth and final quadrant of the blood agar, being careful to overlap the third streak only once or twice

The student inverted the plate and placed it in an incubator for 18-24 hours

The student checked the plate after the incubation period for isolated colonies, showing the plate and verbally stating observations (e.g., colony characteristics such as round vs irregular, raised vs flat, color vs clear and any evidence of hemolysis – alpha, beta, or gamma)

**Number of Times Task Needs to be Successfully Performed:** 1

**Materials Submitted for Evaluation and Verification:**

1. Task Verification form for Collect Swab for Culture & Streak an Agar Plate to Obtain Isolated Colonies task, signed by the Clinical Mentorship supervisor.
2. A video that clearly shows the student collecting a sample swab and streaking a blood agar plate using the streak isolation technique, AND showing growth as defined in the above criteria for this task.

**Student Name:** \_\_\_\_\_

**Supervisor Name:** \_\_\_\_\_ RVT, CVT, LVT  
DVM, VMD

**Patient Name:** \_\_\_\_\_ **Date:** \_\_\_\_\_

**Patient Name:** \_\_\_\_\_ **Date:** \_\_\_\_\_

I verify that the student performed these tasks under my supervision.

**Signature of Clinical Mentorship Supervisor:** \_\_\_\_\_

## 4. STREAK AGAR PLATE TO OBTAIN A PURE CULTURE

- Goal:** To collect a sample from an isolated colony and streak an agar plate to obtain a pure culture with isolated colonies.
- Description:** The student will select an isolated colony of bacteria with an inoculating loop and streak it onto a blood agar plate using the streak isolation technique to obtain a pure culture with isolated colonies which will be used for all subsequent tasks.
- Criteria:** The student used an inoculating loop to collect a sample of bacteria from an isolated colony from a blood agar plate inoculated for the previous task, and used that sample to apply the primary streak on a blood agar plate.
- The student rotated the plate and used an inoculating loop to streak the second quadrant of the blood agar, being careful to overlap the primary streak only once or twice
- The student rotated the plate and used an inoculating loop to streak the third quadrant of the blood agar, being careful to overlap the second streak only once or twice
- The student rotated the plate and used an inoculating loop to streak the fourth and final quadrant of the blood agar, being careful to overlap the third streak only once or twice
- The student inverted the agar plate and placed it in an incubator for 18-24 hours
- The student checked the plate after the incubation period for isolated colonies, showing the plate and verbally stating observations (e.g., colony characteristics such as round vs irregular, raised vs flat, color vs clear and any evidence of hemolysis – alpha, beta, or gamma)

**Number of Times Task Needs to be Successfully Performed:** 5

**Materials Submitted for Evaluation and Verification:**

1. Task Verification form for Streak Agar Plate to Obtain a Pure Culture task, signed by the Clinical Mentorship supervisor.
2. A video that clearly shows the student collecting a sample from an isolated colony with an inoculating loop and streaking the plate using the proper technique, AND showing growth as defined in the above criteria for this task.

**Student Name:** \_\_\_\_\_

**Supervisor Name:** \_\_\_\_\_ RVT, CVT, LVT DVM, VMD

Date: \_\_\_\_\_ Date: \_\_\_\_\_ Date: \_\_\_\_\_ Date: \_\_\_\_\_ Date: \_\_\_\_\_

I verify that the student performed these tasks under my supervision.

**Signature of Clinical Mentorship Supervisor:** \_\_\_\_\_

## 5. PERFORM KIRBY-BAUER DISC SENSITIVITY TEST

- Goal:** To successfully perform a Kirby-Bauer Disc Sensitivity Test such that one can measure zones and determine the bacterial sample's resistance or susceptibility to certain antibiotics.
- Description:** The student will perform a Kirby-Bauer Disc Sensitivity Test on an organism obtained from an isolated colony from the pure culture plate in such a way that the bacterial sample can be determined as being susceptible, resistant, or intermediate to certain antibiotics.
- Criteria:** The student selected 4-5 morphologically identical colonies from a blood agar or MacConkey plate and aseptically transferred the selected colonies to a tube of sterile saline with an inoculating loop
- The student mixed the contents of the tube by swirling (not inverting) the tube so that the organisms were uniformly suspended in the saline
- The student compared their tube with 0.5 McFarland nephelometer to ensure that the turbidity in the tube was the same
- The student adjusted the turbidity in their tube as needed, by dilution or adding of colonies, to attain a suspension of bacteria with a turbidity equal to the 0.5 McFarland nephelometer
- The student used aseptic technique to dip a sterile cotton swab into the saline suspension of bacteria
- The student rotated the swab against the inner wall of the tube to express excess fluid
- The student swabbed the **entire surface** of a Mueller-Hinton agar plate with the swab
- The student rotated the plate 60° and reswabbed the **entire surface**
- The student again rotated the plate 60° and reswabbed the **entire surface**, then ran the swab around the outside edge of the agar
- The student applied the antibiotic discs with flamed forceps that were allowed to cool between uses. The student gently pressed each disc on the agar surface to ensure complete contact, and made sure the discs were at least 24 mm apart from center to center. The student also ensured that the discs did not move after contact with the agar surface was made
- The student allowed the plate to sit for 1-2 minutes, then inverted the plate and placed it into an incubator
- The student removed the plate from the incubator after 16-18 hours and showed the plate, verbally stating observations
- The student measured the cleared zone **diameters** in mm, through the bottom of the plate
- The student recorded the measurements and stated them verbally
- The student consulted the lab table located in this logbook to determine the susceptibility character of the organism, and verbally stated the results

**Number of Times Task Needs to be Successfully Performed:**  
**Materials Submitted for Evaluation and Verification:**

**1**

1. Task Verification form for Perform a Kirby-Bauer Disc Sensitivity Test task, signed by the Clinical Mentorship supervisor.
2. One video that clearly shows the student performing Kirby-Bauer Disc Sensitivity Test, AND showing growth, measurement and results as defined in the above criteria for this task.

**Student Name:** \_\_\_\_\_

**Supervisor Name:** \_\_\_\_\_ RVT, CVT, LVT  
DVM, VMD

**Date:** \_\_\_\_\_

**Date:** \_\_\_\_\_

I verify that the student performed these tasks under my supervision.

**Signature of Clinical Mentorship Supervisor:** \_\_\_\_\_

## 6. PREPARE A GRAM-STAINED SLIDE

- Goal:** To prepare a Gram-stained slide such that one is able to look at the slide under the 100X oil immersion lens of a microscope and identify morphology and Gram reaction of the bacteria on the slide.
- Description:** The student will prepare a Gram-stained slide with an organism obtained from an isolated colony from the pure culture plate in such a way that the morphology and Gram reaction of the organism on the slide may be identified.
- Criteria:**
- The student selected a bacterial sample by touching a sterile wire or loop to one colony on an agar plate (did not scoop an entire colony off the agar plate)
  - The student mixed the sample on a microscope slide with a drop of water or saline
  - The student circled the sample droplet on the slide with a wax pencil to help identify the area after staining
  - The student allowed the slide to air dry
  - The student heat fixed the slide by passing it through a flame 2-3 times, specimen side up
  - The student held the slide over the sink or placed it on a rack over the sink, flooded the smear with crystal violet, and let stand for one minute
  - The student rinsed the smear briefly with water
  - The student held the slide over the sink and flooded the smear with Gram's iodine solution and let stand for one minute
  - The student rinsed the smear briefly with water
  - The student washed the smear with decolorizer until no more purple color washed off (5-10 seconds)
  - The student rinsed the smear briefly with water
  - The student held the slide over the sink and flooded the smear with safranin and let stand for one minute
  - The student rinsed the smear briefly with water
  - The student allowed the slide to air dry or gently blotted it dry between paper towels
  - The student mounted the slide on the microscope and focused on the smear beginning with the low power lens and working up to the 100x oil immersion lens (do not forget to use immersion oil), and verbally stated Gram Reaction (positive or negative) and morphology (cocci, bacilli)

**Number of Times Task Needs to be Successfully Performed:** 3

**Materials Submitted for Evaluation and Verification:**

1. Task Verification form for Prepare a Gram Stained Slide task, signed by the Clinical Mentorship supervisor.

2. A video that clearly shows the student preparing and evaluating a Gram stain as defined in the above criteria for this task.
  
3. One clear image of cells on the stained slide through the microscope OR mail one stained microscope slide made by the student, using the technique described for the Prepare a Gram-Stained Slide task. The image/slide should be clearly labeled and identified as Gram-positive or Gram-negative as well as stating morphology of the sample (rods, cocci, etc.). Mail to Purdue Veterinary Nursing, 625 Harrison Street, LYNN G171, West Lafayette, IN 47907. **Due by task due date.**
  - a. *An uploaded image is preferred; however, it must clearly show the gram reaction as well as bacteria morphology to visibly demonstrate proficient gram stain technique and identifying correct bacteria morphology. If image is not clear enough to show proficiency, then a new image will have to be submitted. If the image shows two types of bacteria then the task needs to be repeated since this task should be from an isolated pure culture.*

**Student Name:** \_\_\_\_\_

**Supervisor Name:** \_\_\_\_\_ RVT, CVT, LVT  
DVM, VMD

Date: \_\_\_\_\_ Date: \_\_\_\_\_ Date: \_\_\_\_\_ Date: \_\_\_\_\_ Date: \_\_\_\_\_

I verify that the student performed these tasks under my supervision.

**Signature of Clinical Mentorship Supervisor:** \_\_\_\_\_

## 7. PERFORM CATALASE TEST

- Goal:** To successfully perform a catalase test such that one is able to look at the slide and determine whether a bacteria is catalase positive or negative.
- Description:** The student will perform a catalase test on an organism obtained from an isolated colony from the pure culture plate in such a way that the sample may be determined to be catalase positive or negative.
- Criteria:** The student selected a bacterial sample by touching a sterile loop or wire to the center of one colony on an agar plate. If a blood agar plate was used, the student avoided contacting the agar with the loop or wire
- The student applied a drop of 3% hydrogen peroxide onto a microscope slide
- The student smeared the sample in the drop of hydrogen peroxide
- The student immediately observed the slide for bubbling. If using a loop, the student observed the loop for bubbling as well
- The student showed the slide and verbally identified whether the sample was catalase positive (bubbling) or negative

**Number of Times Task Needs to be Successfully Performed:** 1

**Materials Submitted for Evaluation and Verification:**

1. Task Verification Form for Perform Catalase Test skill, signed by the Clinical Mentorship supervisor.
2. A video that clearly shows the student performing a catalase test as defined in the above criteria for this task.

**Student Name:** \_\_\_\_\_

**Supervisor Name:** \_\_\_\_\_ RVT, CVT, LVT  
DVM, VMD

**Date:** \_\_\_\_\_

**Date:** \_\_\_\_\_

I verify that the student performed these tasks under my supervision.

**Signature of Clinical Mentorship Supervisor:** \_\_\_\_\_

## 8. PERFORM OXIDASE TEST

- Goal:** To successfully perform an oxidase test such that one is able to look at the swab and determine whether a bacteria is oxidase positive or negative.
- Description:** The student will perform an oxidase test on an organism obtained from an isolated colony from the pure culture plate in such a way that the sample may be determined to oxidase positive or negative.
- Criteria:** The student squeezed the oxidase vial to break the glass ampule inside, then inverted the vial and placed a drop of oxidase reagent onto a sterile swab
- The student touched the moistened swab to an isolated colony on an agar plate
- The student after touching the swab to the colony then waited 30-60 seconds for a color change on the swab
- The student showed the swab and verbally identified whether the sample was oxidase positive (turns blue/purple color) or negative

**Number of Times Task Needs to be Successfully Performed:** 1

**Materials Submitted for Evaluation and Verification:**

1. Task Verification Form for Perform Oxidase Test skill, signed by the Clinical Mentorship supervisor.
2. One video that clearly shows the student performing an oxidase test as defined in the above criteria for this task.

**Student Name:** \_\_\_\_\_

**Supervisor Name:** \_\_\_\_\_ RVT, CVT, LVT  
DVM, VMD

**Date:** \_\_\_\_\_

**Date:** \_\_\_\_\_

I verify that the student performed these tasks under my supervision.

**Signature of Clinical Mentorship Supervisor:** \_\_\_\_\_



## 9. IDENTIFY BACTERIA

This task is designed to take everything you've done in this mentorship and apply it to **identify the bacteria isolated from pure culture**. Use the results from the biochemical test results previously performed (such as gram stain, oxidase and catalase tests, morphology including hemolysis) and use the flow chart on the next page to identify the bacteria isolated.

Some tests are not performed to fully narrow down the identification of the bacteria so results can be listed as potential options with further testing required. For example – if you have identified a Gram Negative rod/bacilli that was Oxidase positive then you know it's *Pseudomonas aeruginosa* but if it was Oxidase negative then it could be *Salmonella*, *E. coli*, *Proteus* or *Klebsiella* and further testing would be needed such as motility and Urease reaction.

Identification should be given by circling the correlating test results on the flow chart as well as circling the identified bacterium. If you're unable to complete full identification then circle correlating results as far as you can and circle the next steps that would be performed in a laboratory setting.



