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**AGSC 132**  
**An Introduction to Computer Applications**  
**in Precision Farming**  
**Fall 2023**

First Examination Study Guide

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- What is precision farming?
- What is meant by the term “site specific crop management”?
- What are the main objectives of precision farming?
- Know how precision farming can be useful to farmers.
- What does precision farming involve?
- What are the needed components of a precision farming system?
- What are some examples of crop production inputs that can be varied?
- Define GPS and know what does it stand for.
- Know the types of positioning systems (from your assigned reading).
- What is the Russian equivalent of GPS and how does it differ from GPS?
- What is the orbital altitude of GPS satellites?
- How many orbital planes are there for GPS and how often these satellites circle the earth?
- What are the three segments of GPS and how these segments function?
- How does a GPS receiver determine its position (remember that you are not responsible for the details of GPS operation as explained in one of the handouts).
- Name the factors that affect GPS accuracy.
- What is meant by the term selective availability and why was it instated in the first place?
- What is triangulation from satellites and how many satellites are needed to make measurements with our imperfect receivers in two dimensions? In three dimensions?
- What is the key to measuring distances from satellites?
- What is GDOP and how do good satellites minimize its impact on accuracy?
- What is meant by DGPS?
- What are the general types of DGPS that were discussed in class?
- What are the possible sources for real-time DGPS?
- How do the USCG and FAA (WAAS) systems compare and in what ways these help in improving GPS measurements?
- What kind of accuracy is needed in precision farming (GPS versus DGPS)?
- What are the main differences among the different GPS units used/discussed during the laboratory exercises?
- What does GIS stand, how it can be defined, and what can it do?
- What are the primary benefits of GIS?
- What are the GIS-related fields and how these contribute to GIS.
- What is the difference between having access to a map versus being able to access a GIS?
- What are some of the capabilities of GIS?
- What are some of the sources of data for GIS?
- What are the GIS data formats and some of the uses of GIS?