The gastroenteropancreatic neuroendocrine tumors (GEP-NETs) are composed of cells with a neuroendocrine phenotype. Well-differentiated tumors, well-differentiated carcinomas, poorly differentiated carcinomas, functioning tumors (with a hormonal syndrome), and nonfunctioning tumors are identified. To predict their clinical behavior, these neuroendocrine tumors are classified on the basis of their clinicopathological features, including size, local invasion, angioinvasion, proliferative activity, histological differentiation, and metastases, into neoplasms with benign, uncertain, low-grade malignant and high-grade malignant behavior. In addition, a tumor/nodes/metastases classification and a grading system are presented. In the light of these criteria, the various GEP-NET entities are reviewed.